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An Assessment of the Supplies of Natural Gas and Fuels for Generating Electricity in Ohio From November 1981 - October 1982

Presented to

Governor James A. Rhodes

Ohio Legislature

Public Utilities Commission of Ohio

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Ohio Department of Energy
Robert C. Masoner, Director

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AN ASSESSMENT OF THE SUPPLIES OF NATURAL GAS AND FUELS FOR GENERATING ELECTRICITY IN OHIO

SUMMARY

Section 4905 of the Ohio Revised Code requires than on July 1 and November 1 of each year Ohio's natural gas and electric utilities report forecasts of their projected fuel supply and demand for the ensuing twelve-month period. The statute further requires that the Ohio Department of Energy (ODOE) review each report and compare it to the Department's incepencently generated forecasts. This report represents ODOE's assessment of these individual forecasts and provides an aggregate forecast of Ohio's natural gas and electricity supply/demand outlook for the period November 1, 1981 through October 30, 1982.

Electricity

For the twelve month period ending in September 1981, consumption of electricity in Ohio was 0.3 percent higher than during the previous twelve month period. Residential sector demand decreased 0.6 percent, commercial sector demand increased 2.6 percent, and industrial sector demand increased 0.7 percent. Ohio Department of Energy forecasts for the twelve month period ending October 1982 indicate that residential sector consumption will decline 1.8 percent. Commercial sector consumption is forecast to increase by 2.3 percent; and industrial sector consumption is forecast to decline 1.6 percent.

The projected supply of coal and oil is adequate under normal circumstances.

Natural Gas

Following the passage of the Natural Gas Policy Act of 1978, new customer hookup bans were lifted from all Ohio utilities by the end of 1979. However, natural gas utilization levels in residential, commercial, and industrial sectors declined in 1980, relative to 1979. The only sector where natural gas utilization established a consistent upward trend from 1978 on is the electric utilities sector, which accounts for less than 1.1 percent of the total natural gas utilization in Ohio.

The experience of the past two years clearly indicates that declining levels of natural gas utilization in Ohio are no longer due to curtailments of customer base allocations to apportion inadequate supplies. The four-fold increase in the price of natural gas between 1972 and 1980, as indicated in Table 19, and the eight-fold increase in the price of imported crude oil during the same period of time, have expanded the share demanded by energy expenditures in the budget and balance sheets of U.S. households and industry. This increase has been of such magnitude that the maintenance of a minimal customary level of discretionary expenditures on nonenergy items has required consumers to make continuing reductions in absolute levels of energy consumption. In other words, energy consumers are simply being priced out of the market, or, at least, out of their more costly habits. This is exactly what is expected to happen as the price mechanism undertakes the process of allocating a scarce resource.

However, in actual practice, there is always a question of information and implementation costs, and a consequent problem of public welfare, involved under these circumstances. It is not clear that the

customers who are being forced to reduce their energy consumption levels will be able to do so through the adoption of the most efficient and effective measures that could be available and feasible for them. This is the case because the information, training, or costs involved may exceed consumers' capabilities. The provision of conservation services, information, or programs by a single public authority can, however, improve public welfare, and expedite greater conservation, at a net gain to consumers who would be the beneficiaries of such services.

As long as energy prices outstrip the growth in real per capita income, there is reason to believe that energy consumption in general, and natural gas consumption in particular, will not exhibit sustained upward trends similar to those observed in the sixties. Significant fluctuations in sectoral natural gas consumption levels may be expected in response to severe climatic conditions, or in response to fluctuations in the general unemployment levels in Ohio.

For 1982, we expect that sectoral natural gas requirements will not significantly increase above their 1981 levels. Industrial requirements, however, may increase or decrease within a plus or minus 5 percent margin depending upon the alleviation or aggravation of the current industrial unemployment levels in 1982.

Projected natural gas supplies for 1982 should be sufficient even in the case of a 10 percent colder than normal winter.

INTRODUCTION

This report has been prepared by the Ohio Department of Energy pursuant to Section 4905.14 (E) of the Ohio Revised Code. The statute requires the Department of Energy to provide a summary, analysis and recommendations based on the Ohio public utilities' energy supply and demand projections for the twelve-month period beginning November 1, 1981. In accordance with Section 4905.14 (D), a copy of each utility's November forecast was submitted to the Governor, Clerk of the Senate, the Legislative Clerk of the House of Representatives, and the Public Utilities Commission of Ohio on November 10, 1981. The utilities' forecasts and historical data are the primary input for this report. Several other sources of information have also been used, including historical energy data developed by the Ohio Department of Energy, federal energy reports, and publications from the American Gas Association and the Electric Power Research Institute. A substantial and successful effort has been undertaken to develop a comprehensive data base and at the same time maintain the ability to provide timely analyses and forecasts.

Objectives

In the preparation of this report, the Ohio Department of Energy set forth the following major objectives:

1. To provide an adequate historical, energy-related data profile for identification of current status and future trends;
2. To provide analysis and interpretation of changes in energy supply and demand;
3. To provide an independent assessment of the adequacy of natural gas and electric energy supply for the upcoming twelve months; and

4. If a potential deficiency between supply and demand is identified, to suggest a strategy for implementation in order to prevent or mitigate any interruption or curtailment of service.

The basis for the information to be evaluated is supplied in part by the reports filed with the Ohio Department of Energy, federal reports, and the research and analysis of the Ohio Department of Energy.

Temperature and Energy Consumption

Changes in the observed annual energy requirements of the three major consuming sectors may be explained by a variety of factors. Temperature is a variable which explains much of the observed variation. It is particularly significant in the residential and commercial sectors where, during summer and winter periods, the requirements for electricity and natural gas are used to maintain comfortable room temperatures.

Two indicators which measure temperature-sensitive energy requirements are heating degree days and cooling degree days. The daily mean temperature is obtained by adding together the maximum and minimum temperatures reported for the day and dividing the total by two. When the daily mean temperature is 65^{0} F, the degree day is zero. Each degree of mean temperature below 65^{0} F is counted as one heating degree day. This indicator is convenient because the amount of heat required to maintain a certain temperature level is proportional to heating degree days.

The cooling degree days are defined similarly: each degree of mean temperature above 65^{0} F is counted as one cooling degree day. If the daily mean temperature is 65^{0} F or lower, the cooling degree day total is zero.

Since most homes and commercial buildings in Ohio are heated by natural gas, the reporting gas utilities are required to submit supply and demand forecasts under a normal winter scenario and a ten percent colder than normal winter scenario. In addition, the relationship between natural gas consumption and heating degree days is closely monitored by ODOE during the winter heating season (from November through March). Table 1 and Figure 1 show, for the past two heating seasons, population-weighted state heating degree day summaries. In addition, a normal heating degree day series, defined as the 30 year average of the years 1941 to 1970, is presented.

On November 27, 1981, The National Weather Service issued a long-range forecast of precipitation and temperature for Ohio for the months December 1981 through February 1982. The forecast states that there is a fifty-five percent chance that precipitation will be normal during the period, and sixty-five percent chance that temperature will be colder than normal during the period.

Rules and Requirements for This Report

The administrative rules and forecasting requirements (OAC 1551:1-4 and 1551:1-5) became effective November 1, 1978. The present forecasting reports submitted by electric and gas utilities are in accordance with these rules.

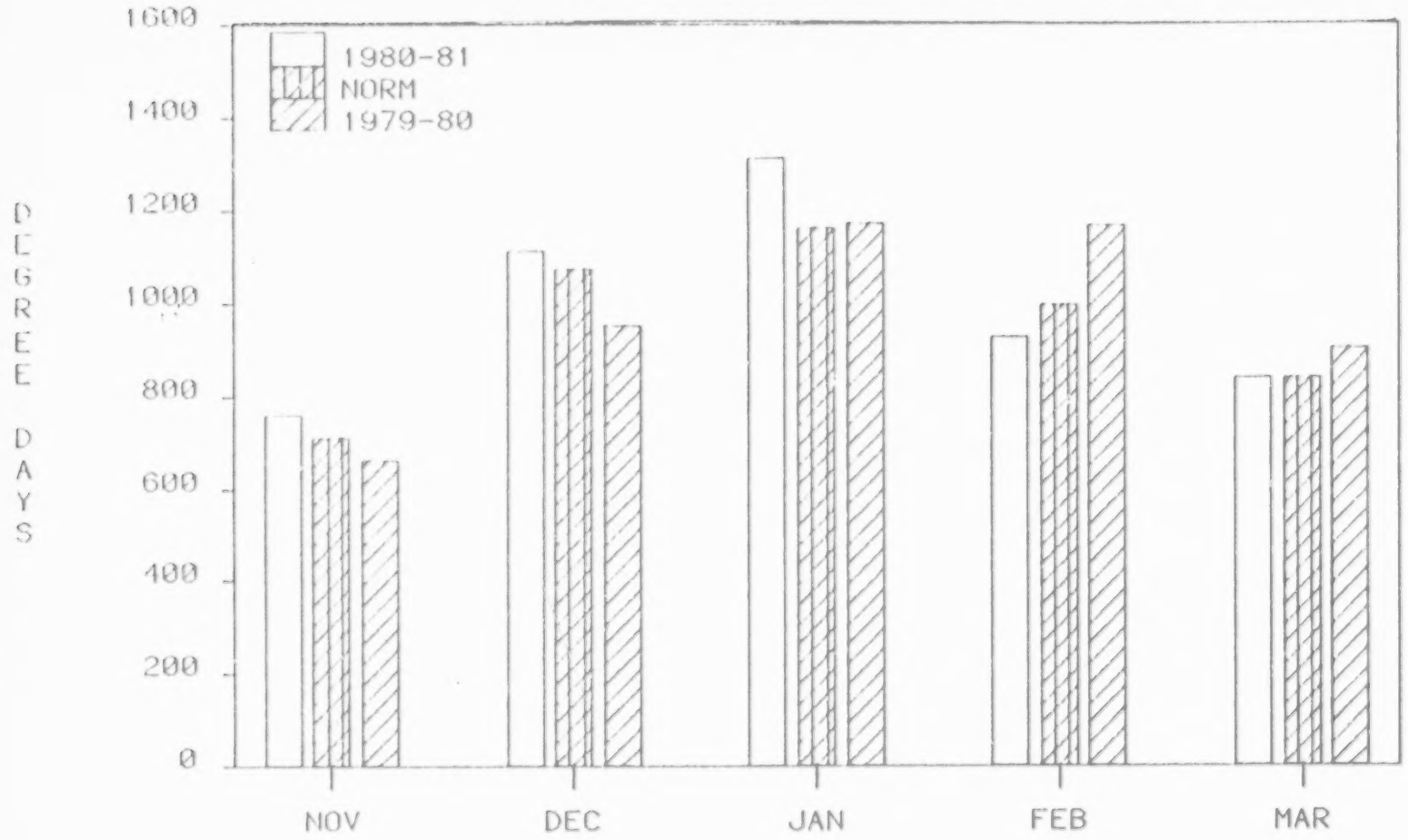
It is necessary to differentiate between state energy consumption and production totals and the reporting utilities' totals. This is because the municipal utilities, industrial facilities and the rural electric cooperatives are not required to file the semi-annual report. This difference is actually very small (estimated to be about 6 percent for the electricity figures and 1.7 percent for natural gas (excluding self-help gas).

Table 1. Population-Weighted State Degree-Day Summary for Ohio
November 1, 1980 to March 31, 1981

Week Ending Date	1980-81			Norm			1979-80		
	Weekly	Cum. for Month	Cum. from Nov. 1	Weekly	Cum. for Month	Cum. from Nov. 1	Weekly	Cum. for Month	Cum. from Nov. 1
Nov. 2	52	52	52	33	33	33	30	30	30
9	110	162	162	138	171	171	160	190	190
16	117	339	339	159	330	330	193	383	383
23	214	553	553	180	510	510	90	473	473
30	208	761	761	201	711	711	189	662	662
Deviation from Norm		7.0%	7.0%					-6.9%	-6.9%
Dec. 7	163	163	924	221	221	932	217	217	879
14	210	373	1134	237	458	1169	195	412	1074
21	296	669	1430	248	706	1417	238	650	1312
28	313	982	1743	256	962	1673	190	840	1502
31	127	1109	1870	111	1073	1784	109	949	1611
Deviation from Norm		3.4%	4.8%					-11.6%	-9.7%
Jan. 4	170	170	2040	149	149	1933	145	145	1756
11	384	554	2424	261	410	2194	266	411	2022
18	310	864	2734	263	673	2457	206	617	2228
25	232	1096	2966	261	934	2718	264	881	2492
31	216	1312	3182	224	1158	2942	290	1171	2782
Deviation from Norm		13.3%	8.2%					1.1%	-5.4%
Feb. 1	36	36	3218	37	37	2979	48	48	2830
8	324	360	3578	258	295	3274	336	384	3214
15	281	641	3859	254	549	3528	292	676	3506
22	128	769	3987	246	795	3774	246	922	3752
28	156	925	4143	201	996	3975	245	1167	4007
Deviation from Norm		-7.1%	4.2%					14.7%	0.8%
Mar. 1	26	26	4169	33	33	4008	41	41	4048
8	238	264	4407	218	251	4226	262	303	4310
15	190	454	4597	201	452	4427	227	530	4840
22	240	694	4837	183	635	4610	156	686	4996
29	129	823	4966	162	797	4772	174	860	5170
31	15	838	4981	40	837	4812	40	900	5210
Deviation from Norm		0.1%	3.5%					7.0%	7.6%

Source: National Weather Service, Port Columbus, and the Ohio Department of Energy.

FIGURE 1. POPULATION-WEIGHTED STATE DEGREE-DAYS FOR OHIO
WINTER HEATING SEASONS 1979 - 1981



SOURCE: OHIO DEPARTMENT OF ENERGY

Ohio Department of Energy Forecasts

As part of its analysis, the Ohio Department of Energy makes independent forecasts to serve as validation checks. Early identification of severe conditions permits advanced planning to avert possible undesirable consequences.

The Ohio Department of Energy has the capability to forecast monthly demand by utility and for the state as a whole within a reasonable level of error (less than 5 percent in most cases). Such forecasts are based on historical month-by-month actual consumption for both electricity and natural gas and other appropriate variables such as population, income, and temperature data. As in any forecast, certain important socioeconomic conditions are assumed in the Ohio Department of Energy forecasts.

These assumptions are stated below:

1. Energy demand generally follows its historical consumption pattern.
2. Socio-economic changes are minimal in affecting demand for energy in the short run.
3. The observed level of conservation will remain in effect.
4. Other specific assumptions are stated where appropriate.

Overview of This Report

The rest of the report is divided into two parts: electric energy and natural gas. Materials contained in these two parts are, for the most part, parallel in arrangement. They contain: (a) a profile of reporting utilities; (b) historic sources of supplies/suppliers; (c) consumption history by sector, utility, and state; and (d) the utilities' forecasts and independent forecast by the Ohio Department of Energy. For the purpose of better illustration, the data are frequently displayed graphically.

ELECTRICITY

This section is based on the November forecasts filed by nine major Ohio electric utilities. Two of these, Columbus and Southern Ohio Electric Company and Ohio Power Company, are subsidiaries of the American Electric Power Company. Since American Electric Power operate as a centrally dispatched, integrated distribution system, the report reviews forecasts of demand and fuel adequacy for the entire American Electric Power System. The Allegheny Power System is also a centralized power generation and distribution system, of which one subsidiary is Monongahela Power. Thus, the forecasts of eight utilities are presented in the report. They are

1. Allegheny Power System (APS)
   - Monongahela Power
   - Other out-of-state utilities not subject to reporting
2. American Electric Power Company (AEP)
   - Columbus and Southern Electric Company (C&SOE)
   - Ohio Power Company
   - Other out-of-state utilities not subject to reporting
3. Cincinnati Gas and Electric Company (CG&E)
4. Cleveland Electric Illuminating Company (CEI)
5. Dayton Power and Light Company (DP&L)
6. Ohio Edison Company (and its subsidiary Pennsylvania Power)
7. Ohio Valley Electric Corporation (OVEC)
8. Toledo Edison Company

With the exception of APS, AEP, and OVEC, each of these is an investor-owned utility supplying electricity to residential, commercial, and industrial customers in its service area. The Ohio Valley Electric

Corporation is a single-customer utility supplying power for the uranium enrichment plant at Portsmouth, Ohio. It also sells surplus generation to other electric utilities.

Source/Supplier of Fuel for Electric Generation

Fuels used in Ohio for electric generation include coal, oil, natural gas and nuclear fuel. At this time, nuclear fuel is not monitored by ODOE: all other fuels are monitored through the utilities' monthly reports. Tables 2 and 3 list coal and oil deliveries to power plants located in Ohio. The main sources of supply and/or suppliers of these fuels remain the same as in the last reporting period.

Coal deliveries to Ohio electric plants during the 1980-1981 heating season (November through March) declined 2.6 percent from the previous heating season, while deliveries of oil declined 38.7 percent. Over the first eight months of 1981, coal deliveries declined 19.4 percent compared with the first eight months of 1980. This decline is attributable primarily to the coal strike settled in June 1981. Oil deliveries declined 51.3 percent over the same period.

Electric Generation by Type of Fuel

Coal is the main source of fuel for electric generation in Ohio, and its position is not expected to change in the foreseeable future. Over the first nine months of 1981, 95.6 percent of total electricity generated in Ohio was from coal, an increase of 1 percent over a year ago: oil-generated electricity accounted for 1 percent, as it did in 1979: and nuclear-generated electricity accounted for 2 percent, a decrease of 1 percent from 1979. The amount of electricity generated from natural gas is very small compared to total generation. A boost in nuclear power generation in Ohio is expected in 1983, when the Zimmer facility is scheduled to come on line.

Table 2. Source of Coal Supply to Electric Utilities
(Ohio Portion)
(In Thousand Short Tons)

Month	Coal Districts								
	1	2	3	4	6	7&8	9	Other	Total
1979									
January	----	176.9	45.2	2,296.6	241.5	1,026.7	129.6	392.0	4,308.5
February	5.7	103.4	52.7	2,124.4	237.9	901.7	124.5	285.6	3,835.9
March	0.5	158.0	60.4	2,516.0	313.8	1,172.8	149.4	231.7	4,602.6
April	32.6	143.3	76.7	2,207.3	276.0	1,405.5	107.7	334.0	4,453.1
May	3.0	106.8	75.4	2,425.0	358.0	1,340.1	143.2	371.0	4,822.5
June	10.2	120.7	83.1	2,369.5	356.3	1,336.7	135.8	388.8	4,801.1
July	6.5	105.7	62.6	1,874.7	178.7	785.2	134.6	425.0	3,573.0
August	6.5	81.2	68.0	2,469.7	295.3	1,242.4	196.2	333.5	4,692.8
September	1.0	148.1	75.5	2,229.4	285.5	1,171.9	92.0	309.8	4,313.2
October	1.0	100.1	63.2	2,382.9	484.5	1,228.1	112.6	296.6	4,669.0
November	0.5	162.4	25.4	2,263.8	286.4	1,398.2	128.4	251.1	4,516.2
December	----	158.9	17.6	2,099.3	289.9	1,370.7	120.7	29.5	4,086.6
Total	67.5	1,565.5	705.8	27,258.6	3,603.8	14,380.0	1,574.7	3,648.6	52,804.5
% of Total	0.1	3.0	1.3	51.6	6.8	27.2	3.0	6.9	
1980									
January	----	210.9	57.0	2,202.8	327.2	1,140.8	131.5	316.8	4,357.0
February	----	136.3	46.9	1,872.3	500.9	964.9	100.1	216.8	3,838.2
March	----	200.4	34.8	2,114.1	126.9	1,485.5	94.6	356.6	4,412.9
April	----	254.1	44.7	2,096.0	215.9	1,216.8	66.1	200.8	4,094.4
May	0.1	165.1	49.0	2,225.2	270.1	1,252.5	125.4	167.8	4,255.2
June	----	158.4	56.2	2,111.3	291.9	1,501.7	159.0	165.4	4,444.2
July	----	151.3	47.1	1,932.9	173.1	892.3	72.8	201.3	3,470.8
August	----	182.6	78.8	2,164.6	261.6	1,295.8	115.1	242.1	4,340.6
September	----	217.5	78.7	2,124.4	275.2	1,286.4	81.5	118.3	4,182.0
October	----	202.1	95.1	2,164.1	265.1	1,388.9	103.4	56.1	4,275.3
November	----	161.5	107.6	1,958.0	261.1	1,094.6	38.8	155.8	3,777.4
December	----	212.4	103.7	2,070.7	233.1	1,130.3	73.3	251.9	4,075.4
Total	0.1	2,252.6	769.9	25,036.9	3,202.1	14,650.5	1,161.6	2,449.4	49,523.4
% of Total	0.0	4.5	1.6	50.6	6.5	29.6	2.3	4.9	

Table 2. Source of Coal Supply to Electric Utilities (Ohio Portion) (Cont'd)
(In Thousand Short Tons)

Month	Coal Districts								
	1	2	3	4	6	7&8	9	Other	Total
1981									
January	----	137.9	82.7	2,241.6	270.6	1,269.2	106.7	319.4	4,428.1
February	----	178.5	91.2	2,063.3	242.3	1,120.4	37.7	196.4	3,929.8
March	----	193.2	137.2	2,333.0	125.5	1,304.2	19.1	332.3	4,444.5
April	----	98.8	41.7	372.4	20.0	664.4	14.4	51.4	1,263.1
May	----	75.9	4.4	422.7	-----	753.8	1.5	-----	1,258.3
June	----	75.3	9.1	1,576.2	190.2	1,137.3	23.9	-----	3,012.0
July	----	157.6	63.6	2,247.1	242.7	874.4	42.4	238.6	3,866.4
August	----	174.5	76.0	2,351.3	361.9	1,191.5	49.9	376.7	4,581.8

District

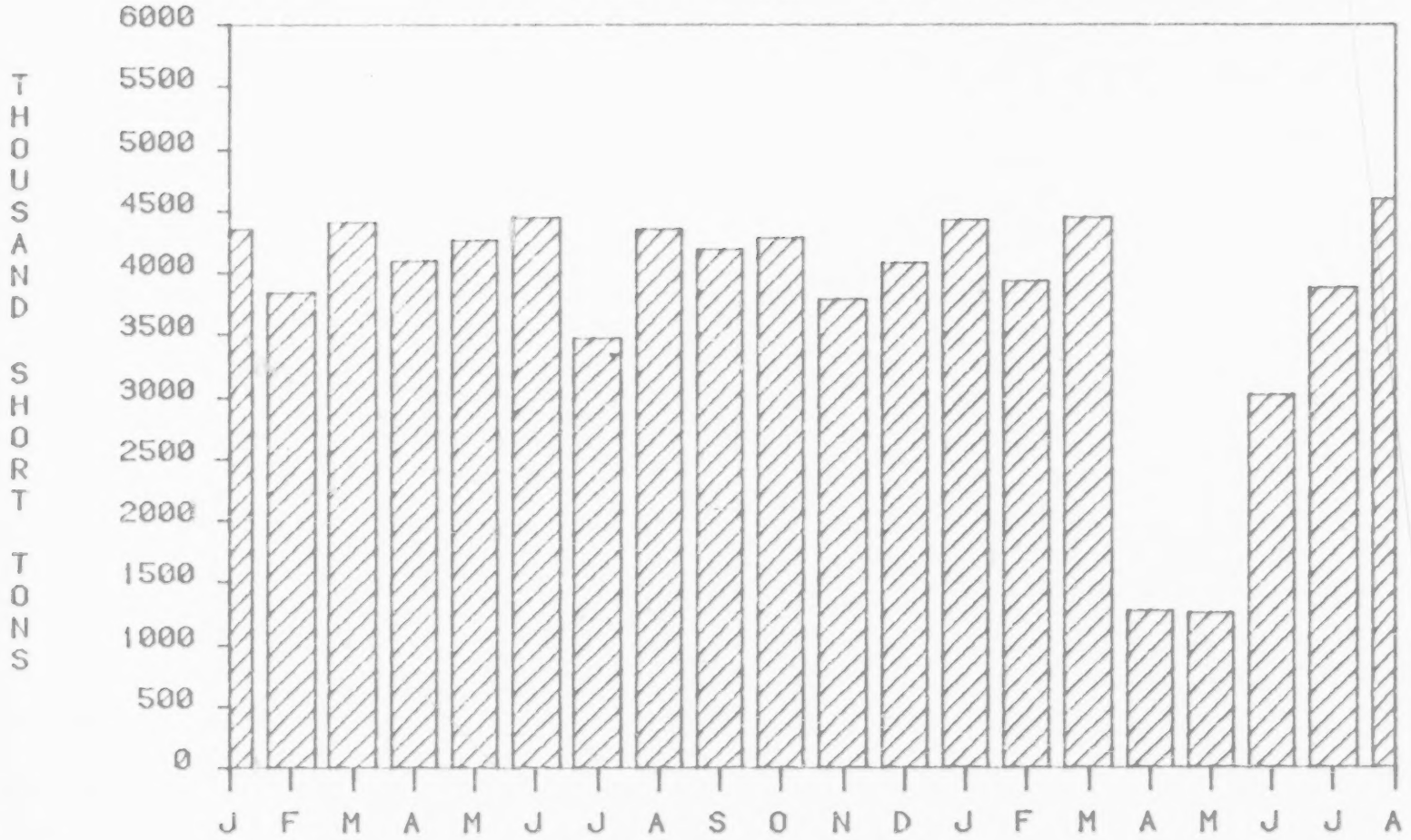
1. Eastern Pennsylvania
2. Western Pennsylvania
3. Northern West Virginia
4. Ohio
6. Panhandle in West Virginia
7. Southern No. 1 (in West Virginia and Virginia)
8. Southern No. 2 (in West Virginia, Virginia and Eastern Kentucky)
9. Western Kentucky

Other - Primarily from Wyoming and Utah

(For details, see Keystone Coal Industry Manual, 1977 by McGraw-Hill).

Source: Ohio Electric Utilities' FPC Form 423 and the Ohio Department of Energy.

FIGURE 2. MONTHLY COAL DELIVERIES TO POWER PLANTS IN OHIO
(JANUARY 1980 - AUGUST 1981)



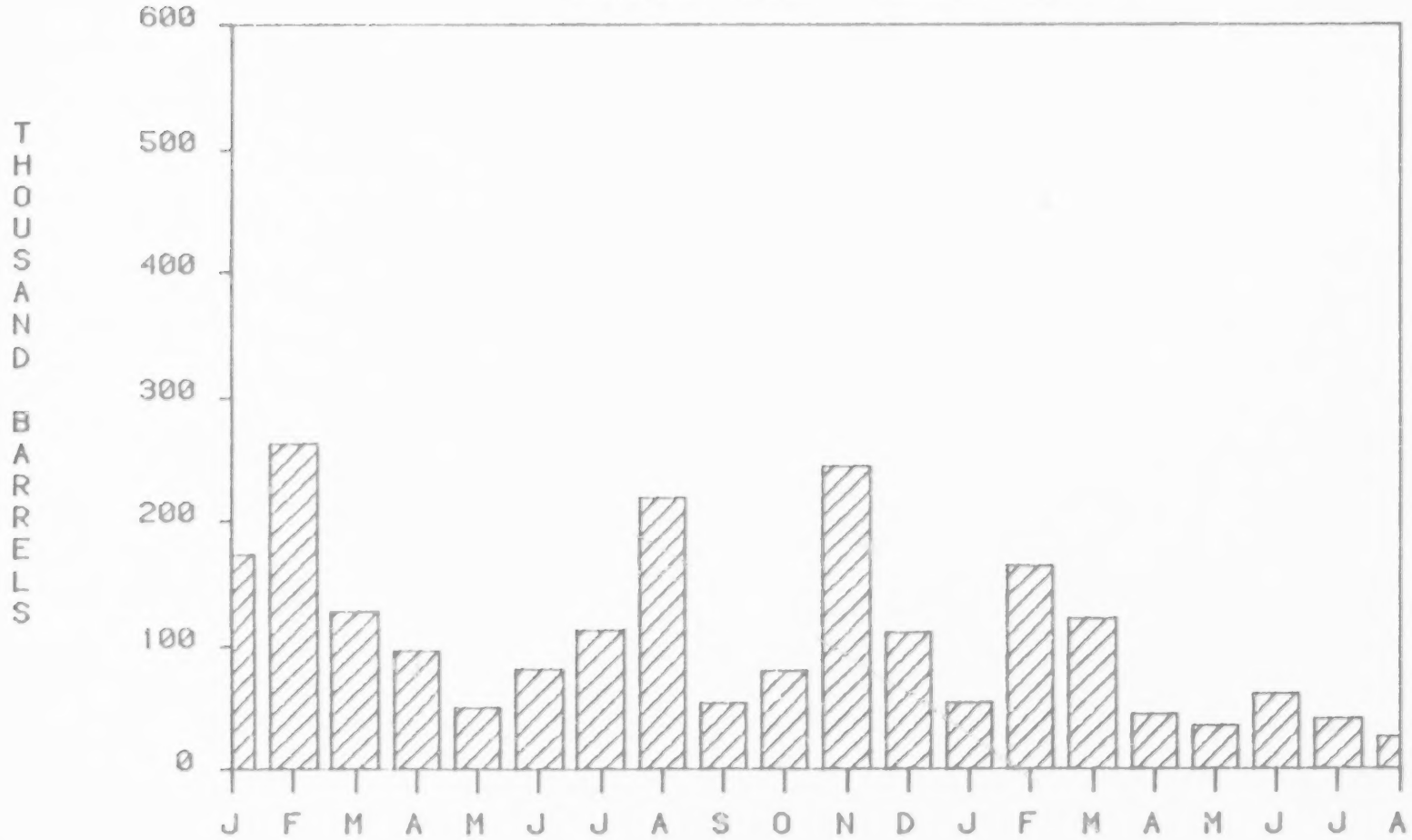
SOURCE: OHIO DEPARTMENT OF ENERGY

Table 3. Major Oil Suppliers to Electric Utilities
(Ohio Portion)
(Thousand Barrels)

1979	Allied	Marathon	McCarty	Standard	Union	Other	Total
January	342.3	4.1	0.6	27.1	14.5	29.1	417.7
February	357.6	3.2	12.5	41.2	19.5	56.2	491.2
March	346.1	1.5	4.6	23.3	12.3	1.6	389.4
April	289.9	0.8	--	13.1	2.6	20.6	327.1
May	172.5	1.5	--	18.0	1.6	12.8	206.4
June	206.8	0.4	--	22.5	2.8	16.5	249.0
July	236.8	0.2	--	16.6	4.4	0.5	258.5
August	120.6	0.4	--	31.8	2.6	--	155.4
September	102.7	0.4	--	29.4	2.4	--	134.9
October	126.3	9.4	--	30.3	6.1	2.7	174.6
November	216.9	1.3	--	34.4	1.9	17.3	271.8
December	242.1	0.5	--	46.4	4.6	2.8	296.6
Total	2,760.6	23.7	17.7	334.1	75.6	161.1	3,372.8
% of Total	81.8	0.7	0.5	9.9	2.2	4.8	
1980							
January	105.0	0.2	--	49.9	4.2	14.9	174.2
February	214.0	0.2	--	44.4	4.2	--	262.8
March	73.9	0.4	--	49.9	3.3	0.1	127.6
April	77.4	0.2	--	14.0	4.7	0.7	97.0
May	40.0	0.2	--	5.1	4.5	1.1	50.9
June	40.5	--	--	35.1	4.7	1.0	81.3
July	71.6	--	--	34.4	4.4	1.2	111.6
August	111.2	42.9	--	45.4	3.5	15.5	218.5
September	39.5	3.8	--	6.4	3.8	0.4	53.9
October	60.9	2.2	--	9.4	4.9	1.7	79.1
November	173.6	0.4	--	21.6	2.3	46.4	244.3
December	94.6	0.6	--	3.4	2.3	10.1	111.0
Total	1,102.4	51.1	--	319.0	46.8	92.2	1,612.4
% of Total	68.4	3.2		19.8	2.9	5.7	
1981							
January	32.6	1.0	--	0.7	3.6	16.0	53.9
February	141.8	--	--	4.0	2.6	15.6	164.0
March	93.8	0.3	--	4.5	4.9	17.9	121.3
April	36.4	0.2	--	4.4	1.8	2.3	45.1
May	28.5	0.2	--	3.4	2.5	0.7	35.3
June	53.4	--	--	4.7	2.6	1.1	61.8
July	31.8	0.2	--	5.3	2.4	0.8	40.5
August	22.0	--	--	3.9	--	0.2	26.1

Source: Ohio Electric Utilities' FPC Form 423 and the Ohio Department of Energy.

FIGURE 3. MONTHLY OIL DELIVERIES TO POWER PLANTS IN OHIO
(JANUARY 1980 - AUGUST 1981)



SOURCE: OHIO DEPARTMENT OF ENERGY

Table 4 and Figure 4 show the combined monthly totals of the reporting utilities' net generation from Ohio plants. Historical power plant fuel consumption and fuel stocks are displayed in Table 5. The build up and subsequent decline in coal stocks from mid 1980 through May 1981 was occasioned by a coal strike settled in June 1981.

Historical Patterns of Ohio Electric Consumption

Since the 1973 OPEC oil embargo and with the escalation of energy prices, the pattern of electricity consumption in Ohio has changed dramatically. Increasing prices have stimulated conservation activities and fostered economic conditions that have resulted in reduced growth rates in the demand for electricity. For the twelve month period ending in September 1981, total electricity consumption in the state was 0.3 percent higher than during the same period twelve months previous (see Table 6 and Figure 5). Residential sector demand was down 0.6 percent, commercial sector demand increased 2.6 percent and industrial sector demand increased 0.7 percent.

Electric consumption by the residential and commercial sectors exhibits strong seasonal patterns while the industrial sector fluctuates widely with general economic conditions. In July 1980, industrial electric consumption dipped to the lowest point in recent years, reflecting a severe downturn in the manufacturing industry and more specifically the automobile related industries. Since September, 1980, monthly industrial electricity consumption has remained rather stable, fluctuating around the 3900 gigawatt-hour level.

Twelve-Month Electric Energy Demand Forecast

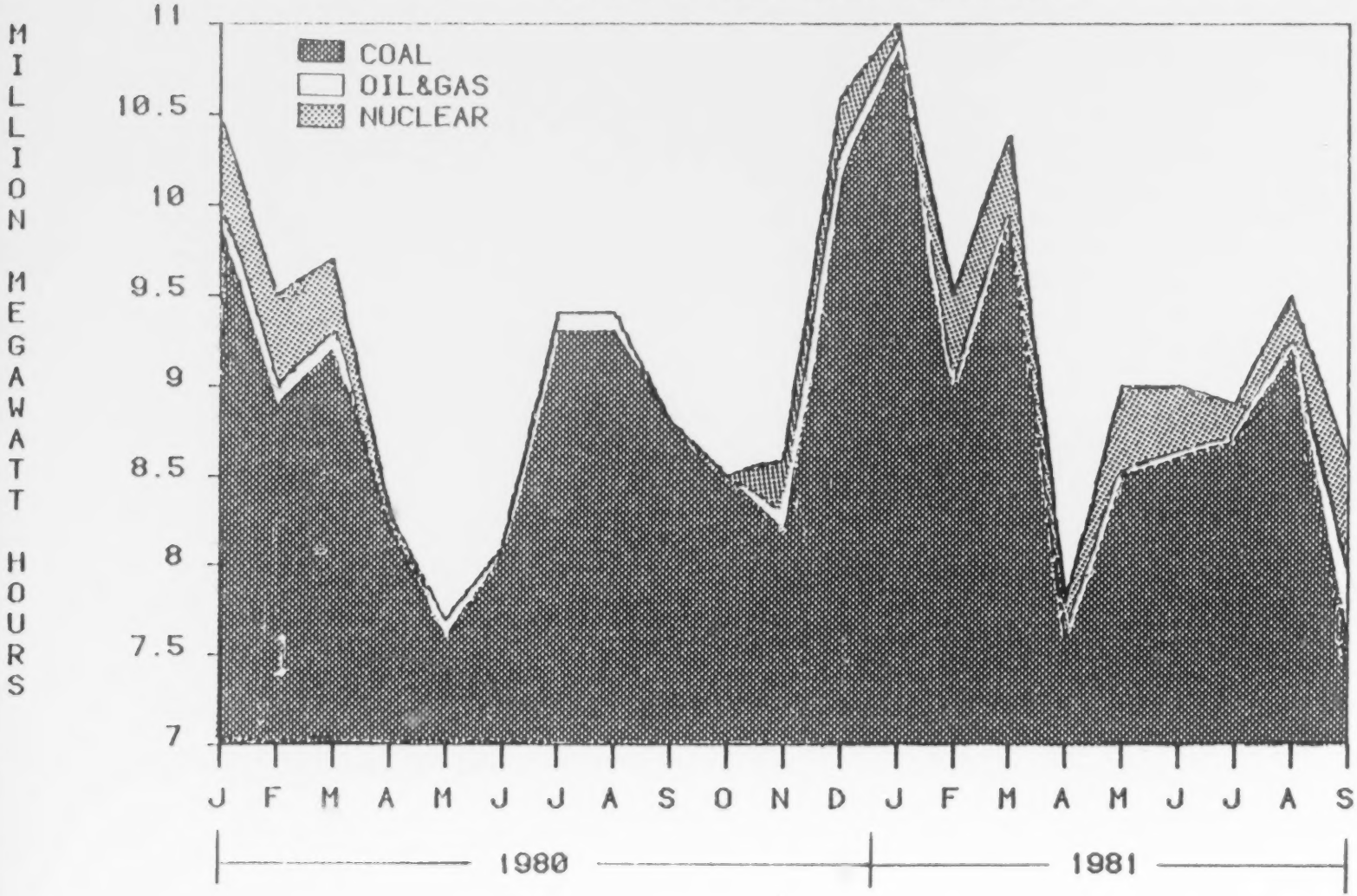
The electric demand forecast is prepared in two ways: 1) a utility by utility forecast is given, each forecast containing total projected demand for the utility's service area, which may or may not be located

Table 4. Major Ohio Utilities - Net Generation by Type of Fuel (Ohio Portion)
(Thousand MWH)

	Coal		Oil		Gas	Nuclear		Total
1979								
January	10,092	(95%)	296	(3%)	9	260	(2%)	10,656
February	9,042	(92%)	315	(3%)	10	458	(5%)	9,825
March	9,263	(93%)	167	(2%)	6	505	(5%)	9,940
April	8,965	(99%)	87	(1%)	5	0		9,057
May	9,016	(99%)	94	(1%)	8	0		9,118
June	9,205	(98%)	140	(2%)	7	0		9,352
July	9,291	(95%)	78	(1%)	8	389	(4%)	9,766
August	9,613	(93%)	57	(1%)	3	642	(6%)	10,316
September	9,126	(94%)	59	(1%)	6	478	(5%)	9,669
October	8,481	(95%)	119	(1%)	11	304	(3%)	8,915
November	8,922	(97%)	141	(2%)	20	128	(1%)	9,210
December	9,937	(99%)	93	(1%)	11	0		10,040
Total	115,864	(96%)	1,646	(1%)	104	3,164	(3%)	115,868
1980								
January	9,863	(94%)	92	(1%)	14	501	(5%)	10,472
February	8,865	(94%)	94	(1%)	13	480	(5%)	9,453
March	9,192	(95%)	81	(1%)	14	419	(4%)	9,706
April	8,204	(99%)	11	(0%)	5	99	(1%)	8,320
May	7,565	(100%)	27	(0%)	8	0		7,600
June	8,112	(100%)	27	(0%)	10	0		8,149
July	9,289	(99%)	67	(1%)	10	0		9,366
August	9,342	(99%)	101	(1%)	41	0		9,484
September	8,781	(100%)	36	(0%)	3	0		8,820
October	8,516	(100%)	29	(0%)	5	0		8,549
November	8,248	(95%)	86	(1%)	36	316	(4%)	8,687
December	10,230	(97%)	51	(0%)	78	304	(3%)	10,593
Total	106,207	(97%)	702	(1%)	237	2,119	(2%)	109,199
1981								
January	10,864	(99%)	38	(0%)	8	58	(1%)	10,968
February	9,032	(94%)	23	(0%)	7	513	(5%)	9,576
March	9,876	(95%)	31	(0%)	13	451	(4%)	10,371
April	7,646	(98%)	3	(0%)	2	160	(2%)	7,810
May	8,547	(94%)	19	(0%)	10	477	(5%)	9,054
June	8,555	(96%)	18	(0%)	11	363	(4%)	8,947
July	8,711	(97%)	17	(0%)	12	200	(2%)	8,941
August	9,156	(97%)	5	(0%)	1	313	(3%)	9,505
September	7,596	(88%)	4	(0%)	412	606	(7%)	8,619

Source: Ohio Electric Utilities' FPC Form 4 and the Ohio Department of Energy.

FIG. 4. MAJOR OHIO ELECTRIC UTILITIES NET GENERATION BY TYPE OF FUEL (OHIO PORTION)



SOURCE: OHIO DEPARTMENT OF ENERGY

Table 5. Major Ohio Electric Utilities
Fuel Consumption and Stocks
(Ohio Portion)

	Coal (Thousand Tons)		Oil (Thousand 42-Gal.Bbls)		Gas (MMCF)
1979	Burned	In Stock	Burned	In Stock	Burned
January	4,756.0	9,016.0	676.6	1,115.1	315
February	4,235.9	8,606.1	798.7	1,009.7	537
March	4,318.9	8,856.2	429.3	1,079.5	443
April	4,076.1	9,529.4	238.9	1,247.6	285
May	4,141.3	10,199.1	242.8	1,193.6	383
June	4,328.6	10,659.5	366.0	1,134.7	353
July	4,401.2	9,758.4	404.9	1,135.2	207
August	4,523.1	9,898.0	184.2	1,329.8	233
September	4,243.5	10,064.0	169.7	1,526.5	372
October	3,867.7	10,883.0	301.7	1,284.7	377
November	4,103.2	11,276.5	435.5	1,182.9	398
December	4,497.2	10,846.2	222.1	1,365.2	266
Total	51,492.0	---	4,470.4	---	4,169
Avg/Month	4,291.0	9,966.0	372.5	1,217.0	347
1980					
January	4,459.8	10,083.3	246.7	1,347.0	317
February	3,935.4	11,351.4	258.2	1,308.6	316
March	4,098.0	11,187.8	181.7	1,247.4	354
April	3,639.8	11,806.2	94.9	1,360.4	129
May	3,396.6	12,897.9	104.1	1,289.3	132
June	3,665.3	13,631.9	108.5	1,282.5	261
July	4,249.1	12,928.6	206.7	1,253.3	301
August	4,336.7	13,114.2	297.6	1,399.9	799
September	3,928.1	13,309.7	123.9	1,097.7	994
October	3,836.1	13,724.7	116.2	1,110.0	123
November	3,738.9	13,811.6	249.9	1,076.8	717
December	4,633.3	13,351.4	181.8	1,048.7	204
Total	47,917.2	---	2,170.2	---	4,647
Avg/Month	3,993.1	12,599.9	180.9	1,235.1	387
1981					
January	4,906.0	12,454.4	143.3	1,055.4	166
February	4,104.6	12,373.3	111.8	1,099.1	164
March	4,456.5	12,464.5	112.2	1,174.3	121
April	3,458.7	10,302.7	70.4	1,154.3	63
May	3,937.0	7,537.9	107.6	1,116.7	119
June	3,971.2	6,742.2	89.0	1,106.1	190
July	3,688.8	6,350.9	99.5	889.6	271
August	4,189.7	7,377.8	60.3	880.1	52
September	3,449.9	8,310.6	50.1	785.9	69

Source: FPC Form 4 of the major electric utilities and the Ohio Department of Energy.

Table 6. Ohio Electricity Consumption
October 1980 - September 1981
(Thousand MWH)

	October	November	December	January	February	March
Residential						
1980-81	2,012.9	2,193.3	2,699.3	3,333.8	2,962.9	2,603.3
1979-80	1,964.1	2,175.4	2,541.1	2,946.4	2,978.8	2,827.9
% Change*	2.5	0.8	6.2	13.1	-0.5	-7.9
Commercial						
1980-81	1,617.6	1,579.3	1,721.2	1,902.9	1,793.0	1,700.4
1979-80	1,547.2	1,550.2	1,642.2	1,732.7	1,785.8	1,720.5
% Change*	4.6	1.9	4.8	9.8	0.4	-1.2
Industrial						
1980-81	3,910.3	3,823.2	3,918.8	3,861.1	3,952.8	4,048.0
1979-80	4,132.3	4,032.8	3,920.5	4,055.4	4,143.9	4,196.2
% Change*	-5.4	-5.2	0.0	-4.8	-4.6	-3.5
Other						
1980-81	465.0	470.5	506.1	507.8	502.2	506.5
1979-80	461.0	458.7	478.4	509.7	511.4	500.6
% Change*	1.1	2.6	5.8	-0.4	-1.8	1.2
Total						
1980-81	8,006.7	8,066.3	8,845.4	9,605.6	9,210.9	8,858.2
1979-80	8,104.6	8,217.1	8,582.2	9,244.2	9,419.9	9,245.0
% Change*	-1.2	-1.8	3.1	3.9	-2.2	-4.2
Customers (000)						
Residential	3,433.8	3,439.2	3,422.4	3,448.0	3,451.2	3,450.8
Commercial	351.7	352.1	350.7	352.1	352.2	352.5
Industrial	23.0	23.0	23.0	23.0	23.1	23.3
Total	3,808.5	3,814.3	3,816.1	3,823.1	3,826.5	3,826.6

*Percentage change is from the same period of the previous year (1979-1980).

Notes: (1) Excludes sales to other utilities.

(2) Figures may not add to exact totals because of independent rounding.

(3) Figures reported include CG&E, CEI, C&SOE, DP&L, Monongahela Power, Ohio Edison, Ohio Power, and Toledo Edison.

Source: Ohio Electric Utility Institute's Monthly Summaries.

Table 6 Ohio Electricity Consumption (Continued)
October 1980 - September 1981
(Thousand MWH)

	April	May	June	July	August	September	Total
Residential							
1980-81	2,179.5	1,985.8	2,065.1	2,521.2	2,370.1	2,197.2	29,124.4
1979-80	2,374.0	1,947.0	1,942.6	2,430.9	2,732.3	2,510.8	29,370.1
% Change*	-8.2	+2.0	+6.3	+3.7	-13.2	-12.5	-0.8
Commercial							
1980-81	1,594.1	1,565.2	1,758.1	1,989.6	1,906.0	1,849.5	20,976.9
1979-80	1,596.7	1,520.0	1,627.2	1,860.3	1,960.9	1,891.8	20,435.5
% Change*	-0.2	+3.0	+8.0	+6.9	-2.8	-2.2	+2.6
Industrial							
1980-81	3,927.2	3,930.4	4,006.0	3,898.7	4,011.1	3,843.9	47,131.5
1979-80	4,006.3	3,784.2	3,617.4	3,485.2	3,628.8	3,787.3	46,790.3
% Change*	-2.0	+3.9	+10.7	+11.8	+10.5	+1.5	+0.7
Other							
1980-81	420.6	390.7	407.1	401.3	382.5	408.3	5,368.5
1979-80	462.4	445.2	443.2	470.4	479.2	441.4	5,691.6
% Change*	-9.0	-12.2	-8.1	-14.7	-20.1	-13.3	-5.7
Total							
1980-81	8,121.4	7,872.1	8,236.6	8,810.8	8,669.6	8,298.9	102,602.5
1979-80	8,439.5	7,696.5	7,630.6	8,246.7	8,801.2	8,661.1	102,288.6
% Change*	-3.8	+2.3	+7.9	+6.8	-1.5	-13.3	+0.3
Customers (000)							
Residential	3,449.7	3,449.3	3,447.2	3,445.1	3,446.5	3,447.7	
Commercial	352.8	353.4	353.1	352.9	353.3	353.5	
Industrial	23.3	23.4	23.4	23.3	23.4	23.5	
Total	3,825.8	3,826.1	3,823.6	3,821.3	3,823.3	3,824.7	

*Percentage change is from the same period of the previous year (1979-1980).

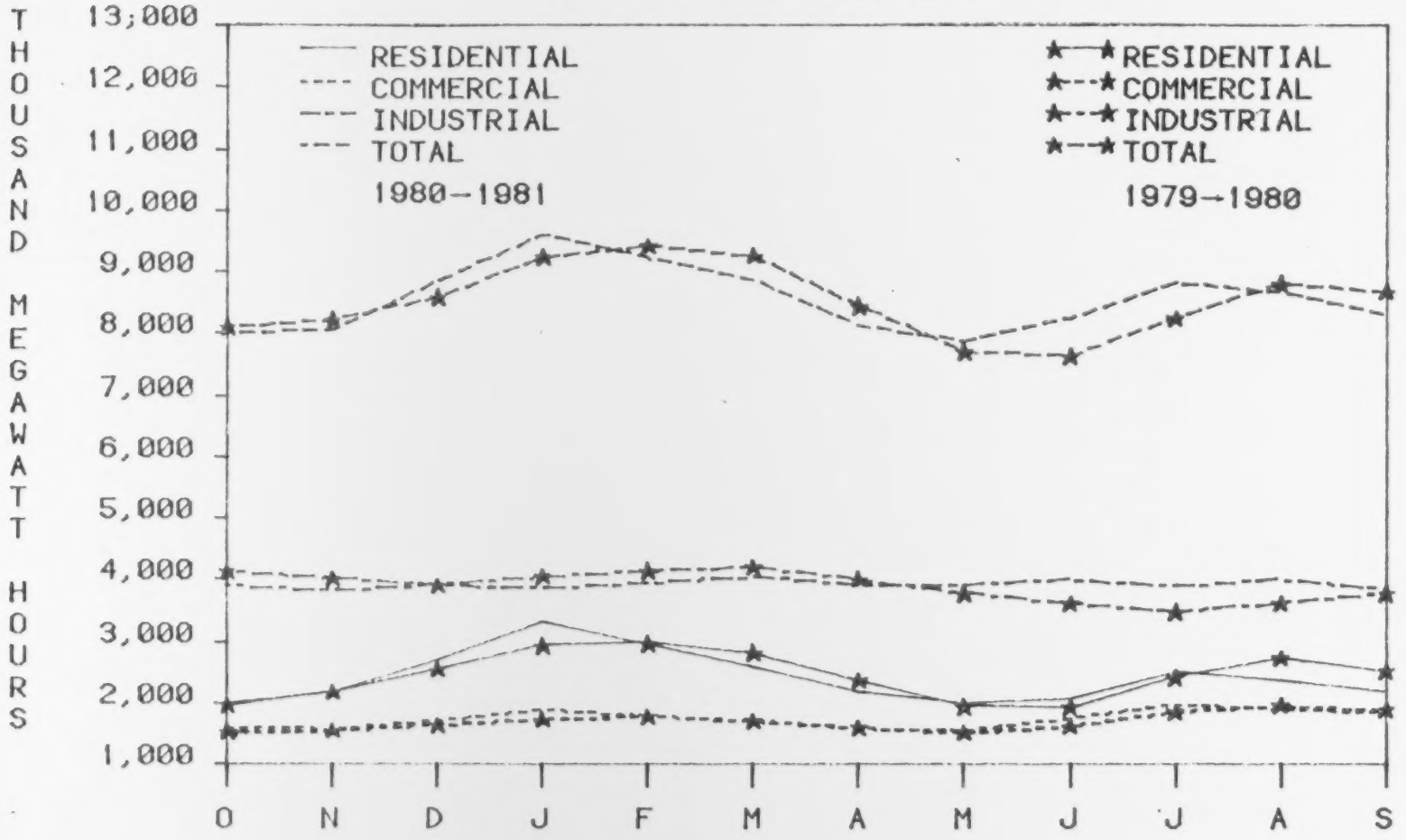
Notes: (1) Excludes sales to other utilities.

(2) Figures may not add to exact totals because of independent rounding.

(3) Figures reported include CG&E, CEI, C&SOE, DP&L, Monongahela Power, Ohio Edison, Ohio Power, and Toledo Edison.

Source: Ohio Electric Utility Institute's Monthly Summaries.

FIG. 5. COMPARISON OF OHIO ELECTRICITY CONSUMPTION BY SECTOR
OCTOBER 1979 - SEPTEMBER 1981



SOURCE: OHIO DEPARTMENT OF ENERGY.

entirely within Ohio; and 2) an aggregate demand for electricity within the state of Ohio is forecasted by sector (residential, commercial and industrial).

Electric Demand Forecast by Utility Service Area

For each utility service area, two electric demand forecasts are provided. One of the forecasts is a reporting utility forecast and the other is provided by the Ohio Department of Energy (Appendix A, Tables A-1 through A-9).

The Ohio Department of Energy forecasts are based on monthly data from the utility reports between January 1970 and September 1981. No independent forecast is given for OVEC because this utility has only one customer whose demand is preplanned.

Because of the overlapping months for the forecasts prepared on July 1 and November 1, the utilities may elect to use their last forecasts for those overlapping months in the new forecasting period. Only the Dayton Power and Light Company and the Ohio Valley Electric Corporation chose to retain their earlier forecasts for November 1981 through June 1982. The American Electric Power Company and Toledo Edison revised each of their monthly forecasts downward.

Utility forecasts of monthly demand for November 1981 through October 1982 are for the most part higher than those prepared by the Ohio Department of Energy. The only exceptions to that pattern are forecasts of demand of the Ohio Edison System and the Toledo Edison Company. Demand forecasts of the Ohio Department of Energy for the American Electric Power Company are much lower than forecasts prepared by the utility (see Tables A-1 through A-8).

Electric Demand Forecast By Sector

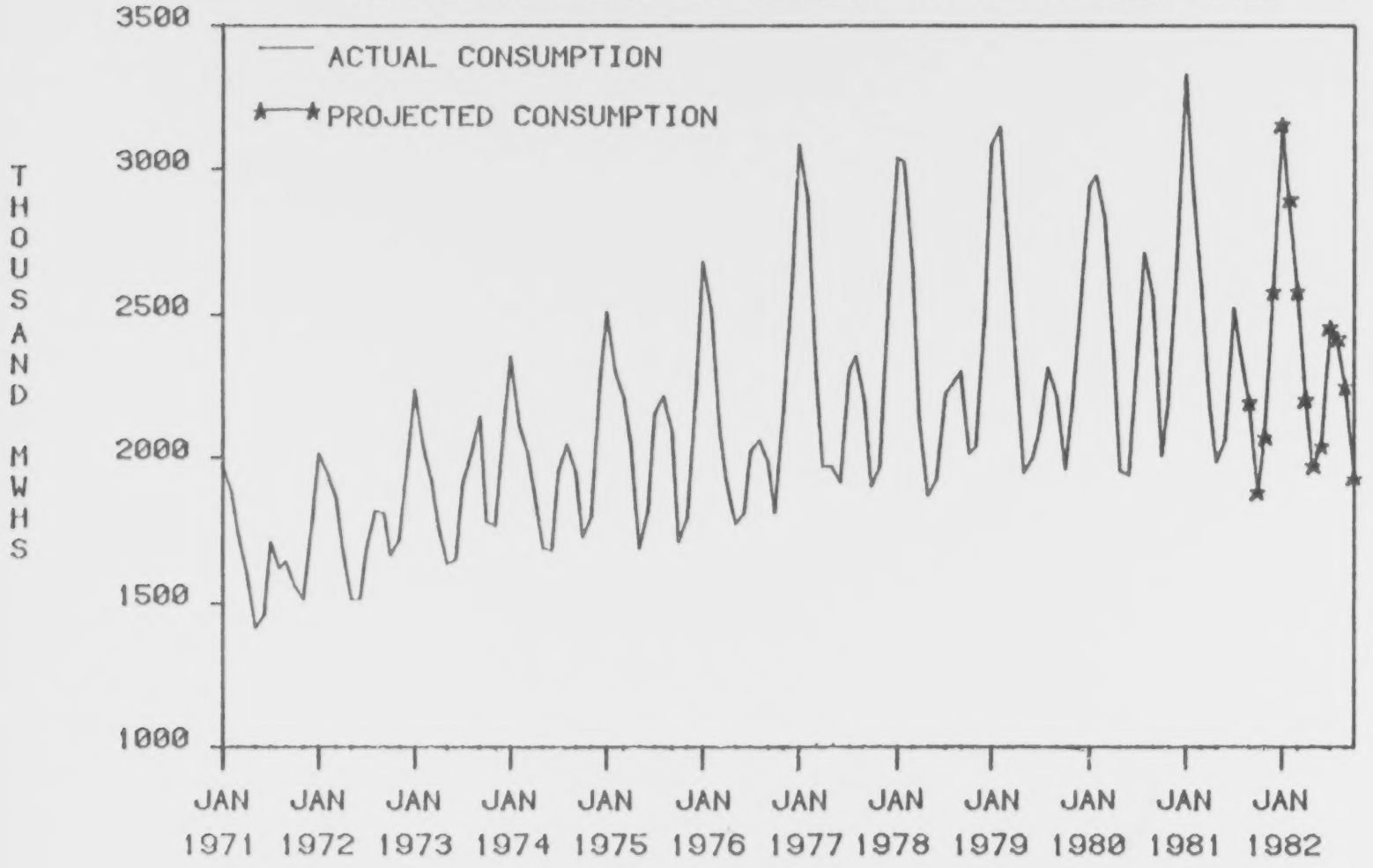
Except for OVEC, Ohio's demand for electricity from all eight major reporting utilities may be estimated based on monthly consumption data from January 1971 through September 1981 (Table 6 and Figures 5 through 9). For each sector, this period provides a time series of 129 observations. Based on these observations, a forecasting model is constructed to generate a monthly forecast for the future months through October 1982. These sectoral forecasts are included in Appendix A, Tables A-9 through A-12.

The total Ohio demand forecast indicates that, with the exception of September, demand will be lower in every month than it was in the previous year (Table A-12). The residential sector demand forecast projects lower demand than the previous year for each month with the exceptions of April, August, and September 1982 (Table A-9). Commercial sector demand is forecast to increase in each month of the forecasting period over the same month of the previous year, with the exception of July (Table A-10). Industrial sector demand is forecast to decrease from 0.9 to 4.2 percent each month over the previous year from December 1981 through August 1982 (Table A-11).

Assessment of Fuel Adequacy by Utility/Utility Group

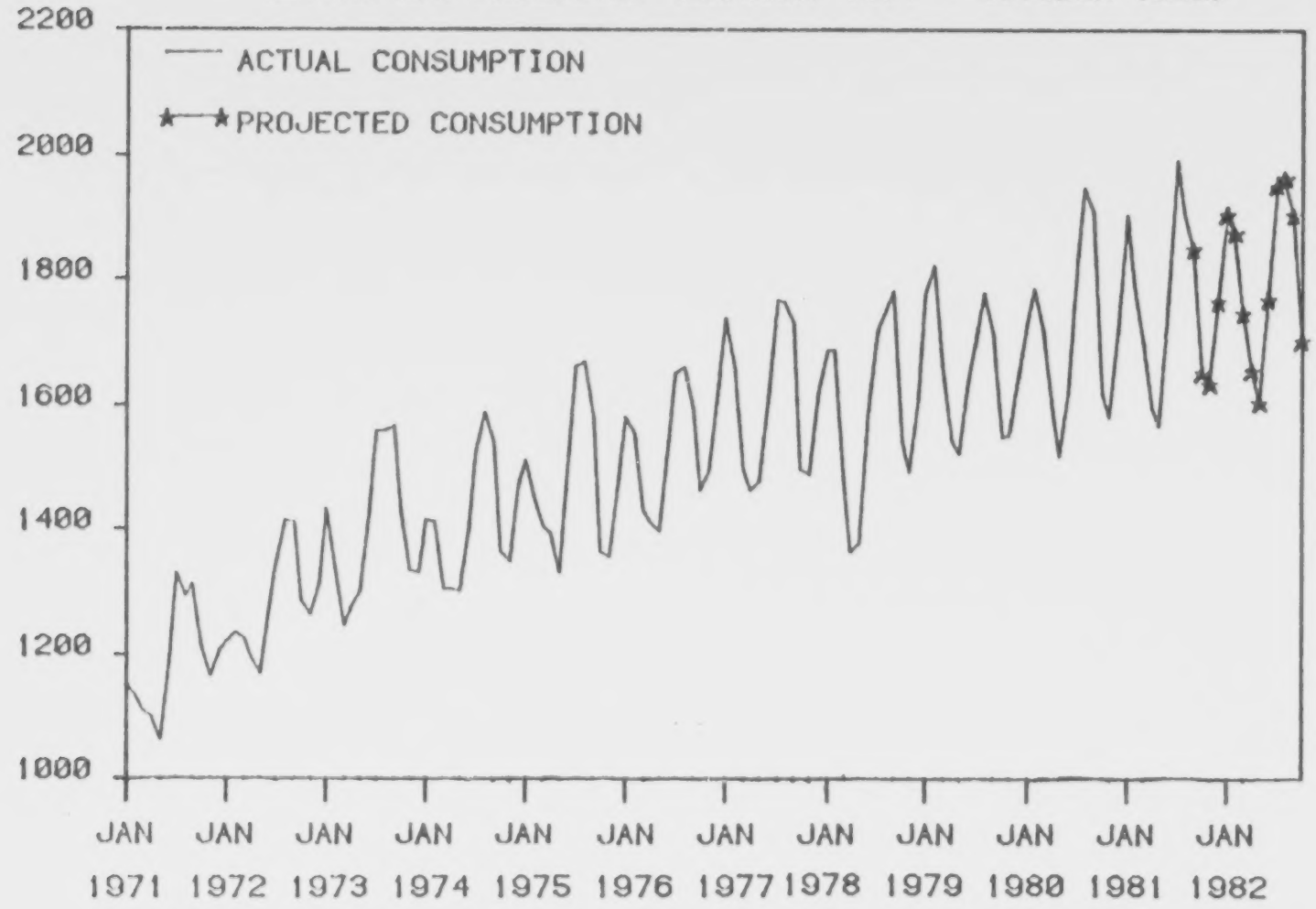
Average daily requirements of coal were determined by dividing projected monthly coal consumption by the number of days in the month. End-of-month stocks were derived by considering consecutively end of October 1981 stocks, projected monthly coal delivery schedules as submitted by the utilities, and projected montnly coal consumption levels. Number of days' supply of coal was estimated on the basis of average daily requirements in subsequent months and the level of end-of-month stocks for the month in question.

FIG. 6. MONTHLY OHIO RESIDENTIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1971 - OCTOBER 1982)



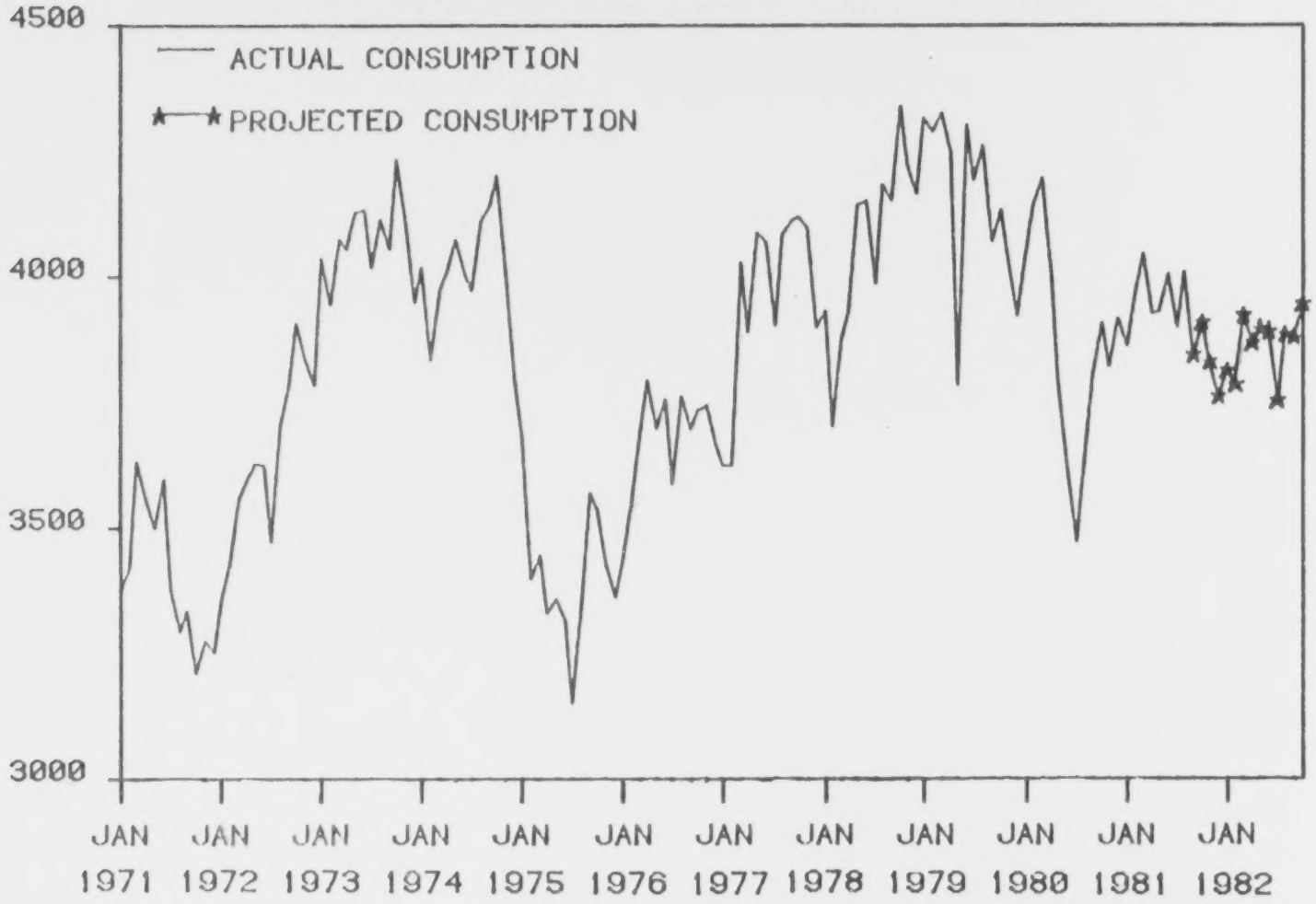
SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY.
(EXCLUDING OVEC)

FIG. 7. MONTHLY OHIO COMMERCIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1971 - OCTOBER 1982)



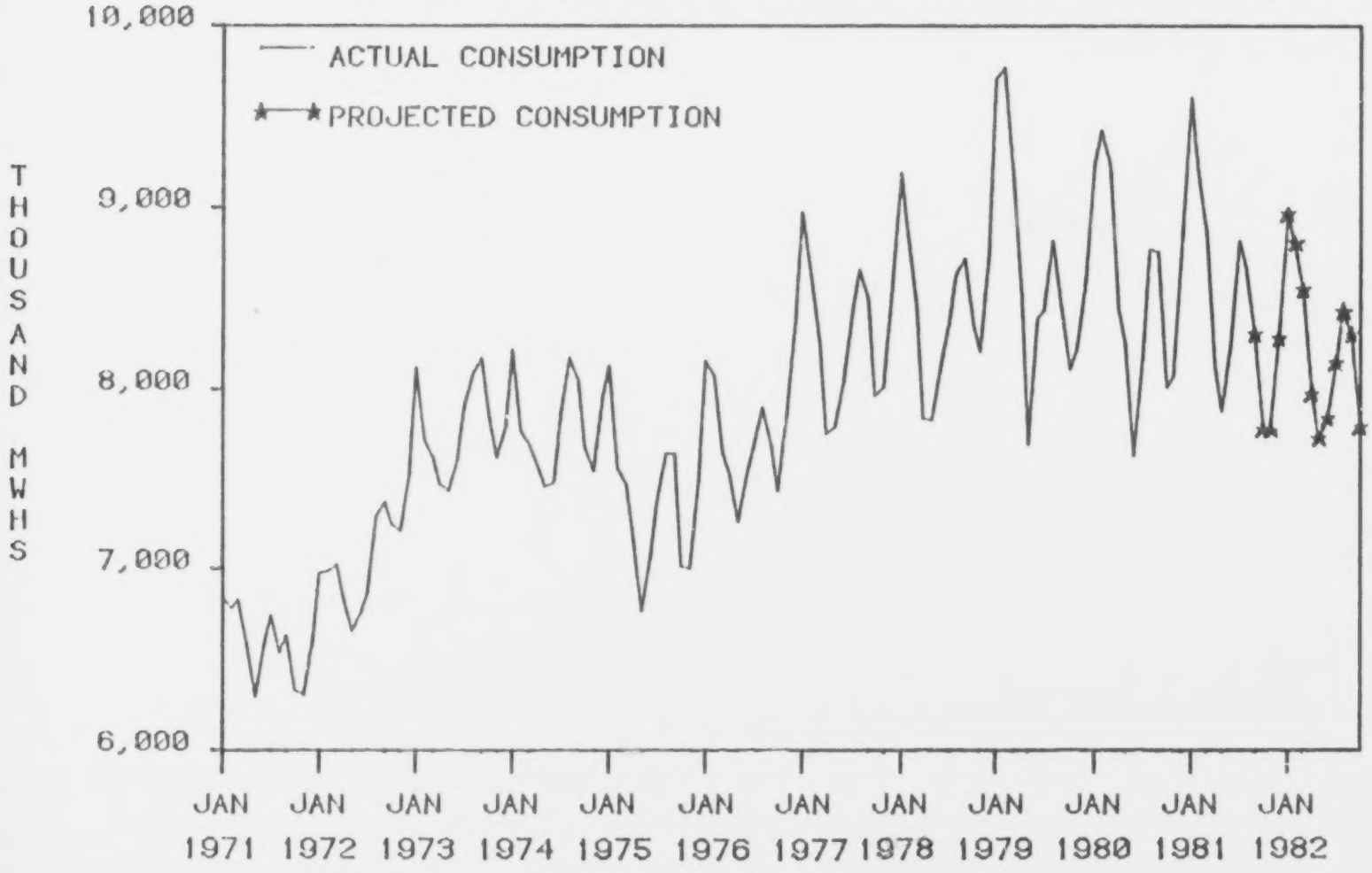
SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY.
(EXCLUDING OVEC)

FIG. 8. MONTHLY OHIO INDUSTRIAL ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1971 - OCTOBER 1982)



SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY.
(EXCLUDING OVEC)

FIG. 9. TOTAL MONTHLY ELECTRICITY CONSUMPTION
ACTUAL AND PROJECTED (JANUARY 1971 - OCTOBER 1982)



SOURCE: OHIO ELECTRIC UTILITY INSTITUTE AND THE OHIO DEPARTMENT OF ENERGY
(EXCLUDING OVEC)

Coal consumption projections were made through the use of a formula which adjusts coal consumption levels for changes in the consumption of oil, natural gas, and nuclear fuel in a manner that is consistent with the projected demand or net energy for load. In making these projections it is assumed that the following conditions will be satisfied:

1. Monthly demand (net energy for load) for November 1981 through October 1982 will be realized in the manner projected by the utility companies.
2. Energy required to supply projected net energy for load in a given month of November 1981 through October 1982 will be proportional to the energy consumed in supplying the actual net energy for load in the respective months of November 1980 through October 1981.
3. Monthly delivery schedules for all fuels in 1981 through 1982 will be met in the manner projected by the utility companies.

Table 7 presents forecast generation by fuel, projected daily consumption of fuel, projected fuel deliveries, projected end-of-month fuel stocks, and estimated remaining days of coal supply by utility. Forecast supplies of fuel for electricity generation are adequate in the case of every utility.

The assessment of oil adequacy is derived by using utilities' projected monthly consumption and deliveries. The projected deliveries are low when compared to the consumption levels experienced in the 1970's. Oil deliveries are believed sufficient, however, since the utilities have demonstrated their ability to reduce fuel oil consumption dramatically since the late 1970's. For the twelve month period from October 1980 through September 1981, utility consumption of oil was 19.0 percent lower than in the preceding twelve month period.

Table 7. Electric Utilities Demand Forecast, Fuel Assessment, and Inventory Model (November 1981 - October 1982)

ALLEGHENY POWER SYSTEM

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	2732.3	3026.2	3261.7	2841.2	2865.4	2663.1	2657.2	2614.7	2673.0	2790.5	2620.0	2799.1	33544.3
EST DEMAND GEN BY COAL	3142.1	3692.0	3848.8	3210.6	3237.9	3275.6	1950.4	2110.1	3421.4	3348.6	3170.2	3386.9	37794.5
EST DEMAND GEN BY OIL	0.0	0.0	6.5	5.7	0.0	0.0	0.0	18.3	0.0	0.0	0.0	0.0	30.5
EST DEMAND GEN BY GAS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	10.5
EST DEMAND GEN BY HYDRO	15.7	15.1	6.5	22.7	20.1	26.6	23.9	28.8	8.0	5.6	0.0	0.0	171.0
PROJ DAILY CONSUMPTION													
COAL (KTONS)	43.05	48.95	51.03	47.13	42.93	44.88	25.86	28.91	45.36	44.40	43.43	44.90	
OIL (KBBL)	0.0	0.0	0.87	0.84	0.0	0.0	0.0	2.51	0.0	0.0	0.0	0.0	
COAL DELIVERIES (KTONS)	1431.5	1425.2	1451.3	1420.9	1404.0	1414.7	1432.9	1441.1	1319.9	1311.2	1340.5	1298.8	16692.1
OIL DELIVERIES (KBBL)	9.22	9.22	21.20	21.20	21.20	21.20	21.20	21.20	21.20	21.20	21.20	21.20	230.45
END OF MONTH STOCK													
COAL (KTONS)	1657.8	1565.7	1435.1	1536.5	1609.7	1678.1	2309.4	2883.3	2797.0	2732.0	2769.5	2676.3	
OIL (KBBL)	431.1	440.3	434.7	432.5	453.7	474.9	496.1	441.9	463.1	484.3	505.5	526.7	
NUMBER OF DAYS SUPPLY													
COAL	34.	31.	31.	36.	40.	61.	62.	64.	64.	62.	62.	60.	

AMERICAN ELECTRIC POWER SYSTEM

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	7226.0	8140.0	8875.0	8214.0	7890.0	7063.0	7007.0	6932.0	7306.0	7621.0	7111.0	7319.0	90703.9
EST DEMAND GEN BY COAL	7587.3	9116.8	******	8871.1	8915.7	7981.2	8758.7	7971.8	8328.8	8002.0	6072.8	6250.4	97385.4
EST DEMAND GEN BY NUC	751.5	1107.0	1473.2	1593.5	1159.8	854.6	945.9	762.5	562.6	1379.4	1287.1	1324.7	13202.0
EST DEMAND GEN BY HYDRO	21.7	48.8	35.5	65.7	47.3	63.6	70.1	48.5	29.2	22.9	21.3	22.0	496.6
PROJ DAILY CONSUMPTION													
COAL (KTONS)	113.40	131.87	145.06	142.06	128.96	119.29	126.69	119.15	120.47	119.75	90.77	90.41	
COAL DELIVERIES (KTONS)	4290.0	4573.0	3922.0	3913.0	4413.0	3946.0	3804.0	4129.0	2384.0	4249.0	4074.0	4070.0	47767.0
END OF MONTH STOCK													
COAL (KTONS)	9258.9	9743.9	9169.0	9104.2	9519.4	9886.6	9763.2	*******	8967.0	9627.9	*******	*******	
NUMBER OF DAYS SUPPLY													
COAL	67.	69.	69.	73.	78.	81.	82.	95.	90.	106.	121.	135.	

Note: ***** indicates value greater than 10000.

Table 7. Electric Utilities Demand Forecast, Fuel Assessment, and Inventory Model (November 1981 - October 1982) (Cont'd)

CINCINNATI GAS & ELECTRIC

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	1261.3	1460.9	1497.3	1301.1	1343.2	1165.5	1237.1	1407.3	1594.0	1619.3	1421.2	1212.3	16420.4
EST DEMAND GEN BY COAL	938.4	1196.5	1358.6	1069.5	926.8	944.0	1036.7	1435.4	1517.5	1425.0	1294.7	1188.1	14311.2
EST DEMAND GEN BY OIL	1.3	4.4	1.5	1.3	1.3	1.2	2.5	4.2	3.2	1.6	1.3	1.2	25.0
PROJ DAILY CONSUMPTION													
COAL (KTONS)	14.47	17.85	19.97	17.67	13.83	14.55	15.47	22.13	22.64	21.26	19.96	17.73	
OIL (KBBL)	0.22	0.75	0.26	0.25	0.23	0.21	0.42	0.74	0.54	0.28	0.23	0.21	
COAL DELIVERIES (KTONS)	580.5	658.7	635.8	526.8	614.5	572.2	463.8	585.9	670.9	650.5	576.4	449.2	6985.2
OIL DELIVERIES (KBBL)	0.0	3.80	9.00	1.30	51.80	0.90	4.00	14.40	40.90	91.40	39.90	6.80	264.20
END OF MONTH STOCK													
COAL (KTONS)	1174.5	1279.8	1296.5	1328.7	1514.5	1650.1	1634.4	1556.4	1525.5	1517.0	1494.5	1394.2	
OIL (KBBL)	209.0	189.6	190.7	185.1	229.8	224.6	215.5	207.5	231.6	314.4	347.3	347.7	
NUMBER OF DAYS SUPPLY													
COAL	62.	71.	85.	91.	88.	83.	74.	72	76.	82.	84.	79.	

CLEVELAND ELECTRIC ILLUMINATING COMPANY

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	1554.0	1681.0	1729.0	1607.0	1679.0	1533.0	1587.0	1653.0	1687.0	1720.0	1619.0	1621.0	19670.0
EST DEMAND GEN BY COAL	1134.4	1092.6	1123.8	1176.3	1128.3	996.4	1117.2	1176.9	1120.2	1123.2	1052.3	1053.6	13295.5
EST DEMAND GEN BY OIL	9.3	16.8	15.6	1.6	11.8	0.0	4.8	5.0	8.4	0.0	0.0	0.0	73.2
PROJ DAILY CONSUMPTION													
COAL (KTONS)	16.27	15.17	15.60	18.08	15.66	14.29	15.51	16.88	15.55	15.59	15.09	14.63	
OIL (KBBL)	0.69	1.20	1.11	0.13	0.84	0.0	0.34	0.37	0.60	0.0	0.0	0.0	
COAL DELIVERIES (KTONS)	460.7	501.6	460.8	471.9	495.1	459.0	428.7	469.0	467.4	471.8	446.9	473.2	5606.1
OIL DELIVERIES (KBBL)	48.40	24.29	85.76	72.21	95.02	19.67	57.93	83.17	76.83	61.71	77.05	76.29	778.33
END OF MONTH STOCK													
COAL (KTONS)	914.3	945.7	923.0	888.7	898.3	928.5	876.5	839.0	824.4	812.9	807.0	826.8	
OIL (KBBL)	476.7	463.7	515.0	583.6	652.6	672.3	719.6	791.8	849.9	911.6	988.7	1065.0	
NUMBER OF DAYS SUPPLY													
COAL	59.	57.	55.	59.	60.	58.	54.	54.	54.	55.	55.	57.	

Table 7. Electric Utilities Demand Forecast, Fuel Assessment, and Inventory Model (November 1981 - October 1982) (Cont'd)

DAYTON POWER & LIGHT

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	911.5	1030.8	1087.6	1004.5	969.6	860.6	857.3	905.5	999.6	987.2	877.0	923.2	11414.4
EST DEMAND GEN BY COAL	1039.1	1175.1	1457.4	1406.3	1066.6	946.6	943.1	996.1	1099.6	1085.9	929.6	978.6	13125.9
EST DEMAND GEN BY OIL	0.9	2.1	1.1	2.0	2.9	0.9	5.1	0.0	0.0	0.0	0.0	0.0	15.0
EST DEMAND GEN BY GAS	18.2	5.2	2.2	5.0	5.8	[illegible]	3.4	2.7	4.0	1.0	1.8	0.0	51.0
PROJ DAILY CONSUMPTION													
COAL (KTONS)	15.62	17.10	21.20	22.65	15.52	14.23	13.72	14.97	16.00	15.80	13.97	14.24	
OIL (KBBL)	0.06	0.13	0.07	0.14	0.19	0.06	0.33	0.0	0.0	0.0	0.0	0.0	
COAL DELIVERIES (KTONS)	561.0	584.0	610.0	513.0	396.0	387.0	445.0	428.0	459.0	465.0	374.0	395.0	5617.0
OIL DELIVERIES (KBBL)	18.00	23.00	41.00	38.00	27.00	13.00	10.00	11.00	19.00	16.00	14.00	43.00	273.00
END OF MONTH STOCK													
COAL (KTONS)	1320.4	1374.4	1327.1	1205.9	1120.8	1080.9	1100.6	1079.4	1042.4	1015.7	970.4	926.1	
OIL (KBBL)	335.2	354.1	392.9	426.9	448.1	459.4	459.1	470.1	489.1	505.1	519.1	565.1	
NUMBER OF DAYS SUPPLY													
COAL	68.	64.	74.	83.	79.	74.	71.	69.	70.	72.	68.	65.	

OHIO EDISON SYSTEM

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	2073.7	2157.7	2369.7	2135.7	2233.9	2040.7	2031.7	2045.4	2156.9	2309.5	2078.2	2160.5	25793.6
EST DEMAND GEN BY COAL	2115.2	2330.3	2559.3	1964.8	2055.2	1877.4	1869.2	2086.3	2200.0	2355.7	2119.8	2203.7	25736.9
EST DEMAND GEN BY OIL	16.6	8.6	16.6	2.1	15.6	2.0	8.1	8.2	4.3	4.6	2.1	2.2	91.1
PROJ DAILY CONSUMPTION													
COAL (KTONS)	32.67	34.83	38.25	32.51	30.72	28.99	27.93	32.22	32.88	35.21	32.74	32.93	
OIL (KBBL)	1.17	0.59	1.13	0.16	1.07	0.14	0.56	0.58	0.29	0.32	0.15	0.15	
COAL DELIVERIES (KTONS)	1050.5	1106.8	1187.7	1034.6	1076.2	1035.7	963.2	909.6	941.6	1015.1	980.7	941.4	12243.2
OIL DELIVERIES (KBBL)	9.81	13.07	51.14	56.05	70.95	55.41	61.61	10.74	19.83	17.98	17.95	35.45	417.99
END OF MONTH STOCK													
COAL (KTONS)	1841.0	1868.2	1870.2	1994.5	2118.6	2284.4	2381.7	2324.7	2247.0	2170.7	2169.3	2089.7	
OIL (KBBL)	91.8	86.6	102.6	154.1	191.9	243.0	287.4	280.8	291.5	299.7	313.2	342.1	
NUMBER OF DAYS SUPPLY													
COAL	51.	52.	59.	67.	73.	75.	72.	69.	66.	66.	66.	63.	

TOLEDO EDISON

	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	TOTAL
DEMAND FORECAST (GWH)	644.0	682.9	701.7	667.3	665.5	614.8	610.1	617.7	638.4	660.0	629.6	631.4	7763.3
EST DEMAND GEN BY COAL	334.4	419.3	357.2	297.0	322.8	375.6	430.7	382.4	381.1	403.9	345.7	381.4	4681.4
EST DEMAND GEN BY OIL	1.9	2.7	4.9	0.7	0.7	1.2	0.6	1.2	1.3	0.7	0.6	0.6	17.2
EST DEMAND GEN BY GAS	1.3	0.7	2.1	1.3	0.7	0.6	0.6	1.2	1.3	0.7	410.5	205.8	626.8
EST DEMAND GEN BY NUC	317.5	297.1	55.4	525.9	449.9	171.5	492.9	365.1	195.4	320.8	648.5	650.3	4490.2
PROJ DAILY CONSUMPTION													
COAL (KTONS)	5.14	5.43	4.62	4.26	4.18	5.02	5.58	5.11	4.93	5.23	4.62	4.94	
OIL (KBBL)	0.14	0.19	0.34	0.05	0.05	0.09	0.04	0.09	0.09	0.05	0.04	0.04	
COAL DELIVERIES (KTONS)	180.0	180.0	145.0	150.0	185.0	175.0	160.0	130.0	130.0	130.0	115.0	115.0	1795.0
OIL DELIVERIES (KBBL)	7.86	19.52	4.76	9.76	4.05	3.09	13.33	5.81	4.17	4.76	8.09	4.17	87.38
END OF MONTH STOCK													
COAL (KTONS)	454.2	465.9	467.6	498.4	553.9	578.1	565.3	541.9	518.9	486.8	463.1	425.1	
OIL (KBBL)	48.5	62.2	56.5	64.9	67.5	68.0	80.0	81.2	82.6	86.0	92.7	95.6	
NUMBER OF DAYS SUPPLY													
COAL	96.	105.	101.	101.	107.	111.	113.	110.	105.	101.	94.	86.	

NATURAL GAS

Service shares of the gas distribution companies operating in Ohio are presented in Table 8 for the annual period September 1980 to August 1981. During this period of time, the four large distribution companies - Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light, and East Ohio Gas - jointly distributed 93.97 percent of the reported natural gas requirements of the state. The four intermediate companies - National Gas and Oil, Ohio Gas, River Gas, and West Ohio Gas - distributed an additional 4.37 percent. The remaining 1.66 percent of the reported natural gas requirements were distributed by 22 small utilities and two municipal utilities. The figures presented in Table 8 do not include self-help natural gas.

Supply

The major sources of supplies of natural gas to the state of Ohio are presented in Table 9, and the quantities supplied are shown graphically in Figure 10. Between September 1980 and August 1981, the eight major gas distribution companies of Ohio, which together account for 98.33 percent of the reported natural gas distribution in the state, procured 925,961 MMCF of natural gas to meet Ohio's requirements. This represents a 1.6 percent decrease in the supplies of natural gas to Ohio compared to the same period last year. This decline reflects the reaction of Ohio's gas distribution companies to the declining natural gas requirements of residential, commercial, and especially industrial end-users in Ohio. The various causes are effective conservation measures, the recession of 1980-1981, and the latest round of price increases for fuel oil and natural gas in 1980.

Table 8. Total Natural Gas Requirements of All Commercial Utilities in Ohio From September 1980 through August 1981
(MMCF)

	(1) Sales to All End Users	(2) Storage (In)	Total Requirement (1+2)	Percent of Total Ohio Requirement
Cincinnati Gas and Electric Co.	1,586	0	91,586	9.73
Columbia Gas of Ohio	337,803	45	337,848	35.88
Dayton Power and Light Co.	59,299	196	59,495	6.32
East Ohio Gas Co.	331,597	64,326	395,923	42.04
National Gas and Oil Co.	14,411	1,082	15,493	1.65
Ohio Gas Co.	7,065	305	7,370	0.78
River Gas Co.	4,595	0	4,595	0.49
West Ohio Gas Co.	13,651	0	13,651	1.45
Total Eight Major Utilities	860,007	65,954	925,961	98.33
Total Small Utilities	8,607	0	8,607	0.91
Municipal Utilities	7,098	0	7,098	0.75
Total All Utilities	875,712	65,954	941,666	100.00

Source: ODOE Form SG-2 and SG-4.

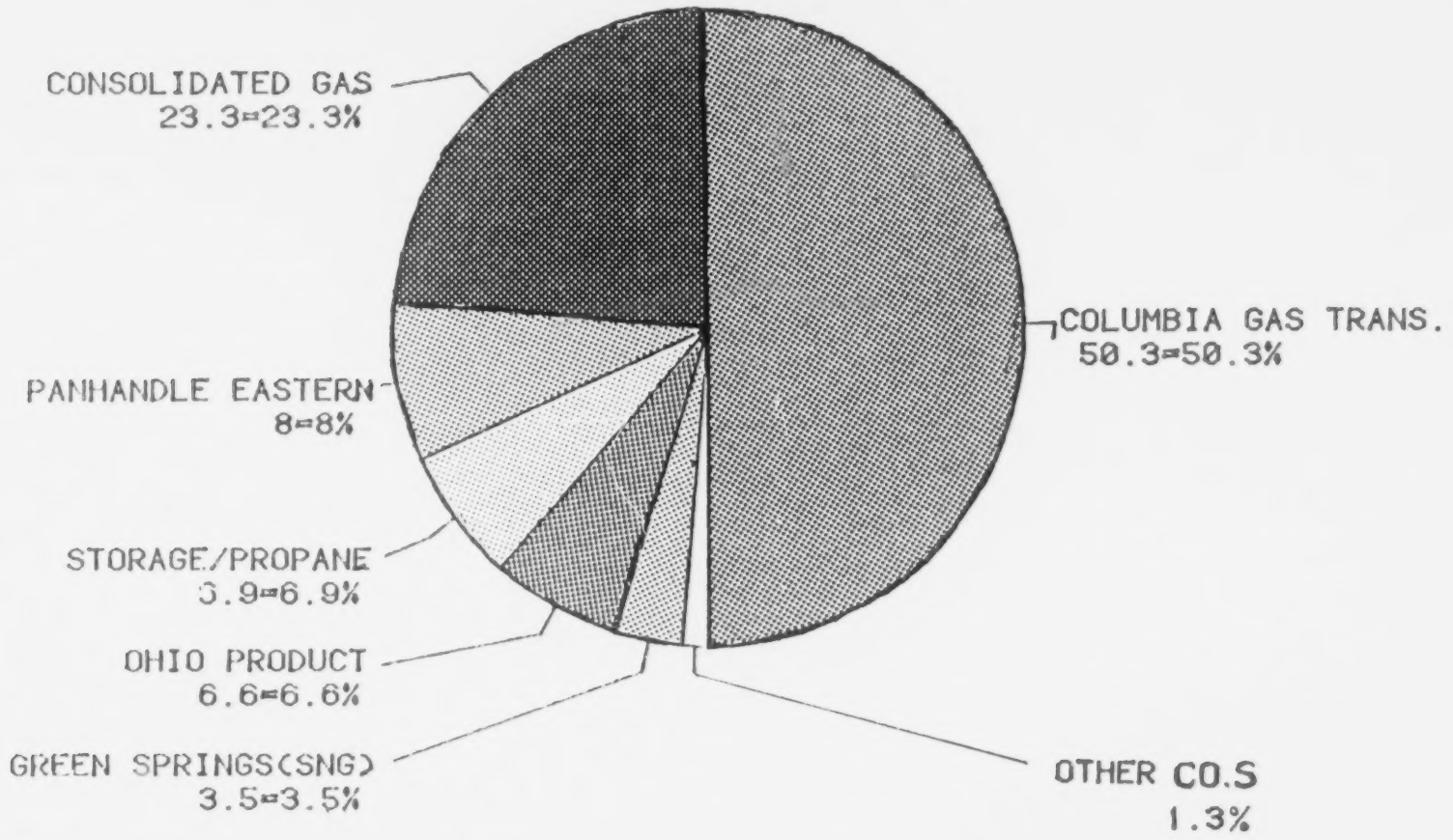
Table 9. Sources of Natural Gas Supplies to the Eight Major Gas Utilities Between September 1980 and August 1981 (MMCF)

Source	Supply	Percent Of Total	Rank
Columbia Gas Transmission Corp.	465,437	50.3	1
Consolidated Gas Supply Corp.	215,952	23.34	2
Lawrenceburg Gas Transmission Corp.	2,399	0.26	8
Michigan/Wisconsin Pipe Line Co.	674	0.07	10
Panhandle Eastern Pipe Line Co.	73,885	7.98	3
Tennessee Gas Pipeline Co.	1,747	0.19	9
Texas Eastern Transmission Corp.	7,100	0.77	7
Texas Gas Transmission Corp.	262	0.03	11
Green Springs (SNG)	32,437	3.50	6
Storage/Propane*	64,024	6.92	4
Other	-38	0.00	
Total SNG and Out-of-State	863,879	93.36	
Ohio Product	61,510	6.64	5
Total	922,906	100.00	

*Gas in storage represents a source during the period under consideration.

Source: ODOE Form SG-2.

FIG. 10. SOURCE OF NATURAL GAS SUPPLY TO
THE EIGHT MAJOR OHIO GAS UTILITIES (SEPT. 1980-AUG. 1981)



SOURCE: OHIO DEPARTMENT OF ENERGY

Of the 922,906 MMCF of total procurement, 93.36 percent is interstate gas purchases and SNG. The remaining 6.64 percent is purchases of Ohio gas. The 61,510 MMCF of Ohio production of natural gas purchased by the eight major gas utilities between September 1980 and August 1981 represents a 13 percent decrease below their purchases of Ohio product during the preceding annual period. This amount corresponds approximately to 44 percent of the state's total production in the calendar year 1980. The remainder of the natural gas produced in Ohio is either transported directly to end users in the self-help program, or is distributed by some of the 22 smaller utilities and the municipal gas utilities.

Domestic interstate gas is the major source of supply for Ohio. Columbia Gas Transmission Corporation and Consolidated Gas Supply Corporation have provided 73.64 percent of the natural gas supplied to the eight major Ohio gas distribution companies. No LNG imports were included in these supplies; and no LNG imports are anticipated by Columbia as a source of supply for the 1981-82 heating season.

Table 10 exhibits a monthly comparison of actual and projected supplies, by source, for the eight major gas utilities.

Historical Behavior of Monthly Sectoral Requirements

The regularities in the monthly time series behavior of residential, commercial, industrial, and total natural gas requirements in Ohio, from January 1970 through August 1981, are displayed in Figures 11, 12, 13, and 14. The seasonal variation in residential and commercial requirements can easily be discerned from these illustrations. Natural gas usage in all sectors peaks during the heating season, and falls off during the cooling season. The contrast between the natural gas

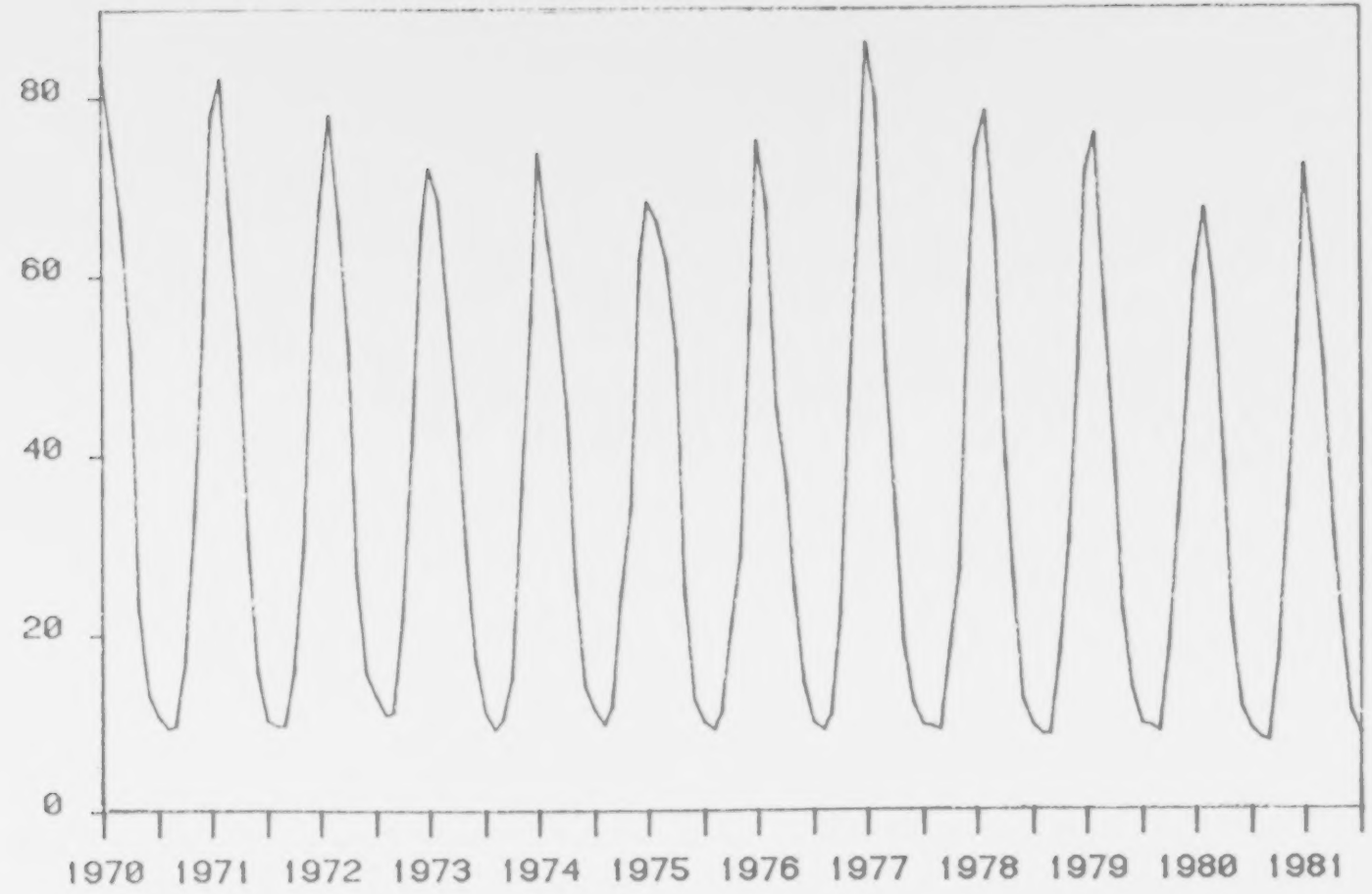
Table 10. Comparison Between One Year of Actual and Forecast Supply for Eight Major Ohio Gas Utilities by Source (MMCF)

NOV-YR	COLUMBIA GAS	CONSOLID ATED GAS	LAUREN CERBUR	MICH. WISC.	PANHANDLE EAST	TENN. GAS	TEXAS EASTERN	TEXAS GAS	EMERG GAS	OHIO PRODUCT	SNG	STORAGE/ PROPANE	OTHER	TOTAL SUPPLIES
A-84	17250	12677	224	7	6318	139	620	9	0	5131	1661	165	-20	46869
F-85	16966	9763	256	6	5972	153	669	7	0	5495	1490	153	15	40645
	17.6%	29.9%	12.5%	16.7%	7.6%	10.3%	33.2%	28.6%	0.0%	-6.6%	11.5%	7.8%	-233.3%	15.3%
A-84	20566	14722	255	54	6402	146	600	13	0	5132	1789	165	-41	49763
F-85	17538	11432	247	15	5692	160	589	7	0	5694	1603	160	46	43453
	15.2%	28.8%	3.2%	126.7%	12.5%	9.5%	1.9%	85.7%	0.0%	-9.9%	11.6%	3.1%	-189.1%	14.5%
10-84	31933	20169	266	100	6899	140	600	15	0	5142	2455	170	-91	67781
10-85	25626	22302	245	27	6325	157	670	18	0	5792	2202	257	309	72773
	7.2%	-9.7%	7.8%	270.4%	8.2%	-10.8%	-10.4%	5.6%	0.0%	-11.2%	11.5%	-33.9%	129.4%	-6.9%
11-84	45791	11837	187	56	7230	0	600	28	0	5342	3290	11412	-80	85745
11-85	47654	13193	208	72	6237	156	535	30	0	5233	3189	12230	-166	88547
	3.9%	10.3%	7.4%	22.2%	16.7%	-100.0%	12.1%	-6.7%	0.0%	2.1%	3.2%	-6.7%	51.8%	-3.2%
12-84	65586	16976	147	58	7528	124	620	44	0	5343	4327	17240	-35	116376
12-85	62925	23542	158	85	6709	153	617	40	0	5276	4140	13714	109	117473
	1.7%	27.8%	7.0%	31.8%	12.2%	21.5%	0.5%	10.0%	0.0%	1.3%	4.5%	25.7%	-132.1%	-0.9%
1-85	76575	22851	106	77	7532	140	605	48	0	5267	4630	16844	-25	134650
1-86	76835	26123	102	150	6748	135	656	50	0	5183	4388	16803	226	139399
	0.3%	18.7%	5.9%	48.7%	11.6%	3.7%	-7.8%	-4.0%	0.0%	1.6%	5.5%	0.2%	-111.1%	-3.4%
2-85	62773	24765	128	84	6601	127	555	39	0	5264	4376	10675	55	115634
2-86	60398	22211	132	93	5924	124	574	38	0	4512	4045	10140	-61	103030
	4.1%	11.5%	-9.1%	-9.7%	14.8%	2.4%	-3.3%	2.6%	0.0%	16.7%	8.2%	5.3%	190.2%	7.0%
3-85	53825	19582	163	93	7525	150	610	35	0	5286	3970	9645	30	100934
3-86	52370	20720	175	79	6368	150	622	32	0	4991	3752	9136	-250	98145
	2.8%	-5.5%	-6.6%	17.7%	18.2%	0.0%	-1.9%	9.4%	0.0%	5.9%	5.8%	5.6%	112.0%	2.8%
4-85	38966	24486	252	75	6743	150	600	22	0	5161	3187	585	10	80205
4-86	36505	22264	227	48	5841	136	570	14	0	5254	2711	674	-178	67996
	28.2%	10.0%	6.6%	56.3%	15.4%	10.3%	5.3%	57.1%	0.0%	-1.8%	17.6%	-13.2%	105.6%	18.0%
5-85	27355	19653	264	55	6675	150	620	14	0	5131	2273	230	-10	62410
5-86	27.0%	17896	241	35	6092	137	614	13	0	4866	2003	425	64	59991
	0.7%	9.8%	9.5%	62.8%	9.6%	9.5%	1.0%	7.7%	0.0%	5.4%	13.5%	-45.9%	-115.6%	4.0%
6-85	20315	14701	255	42	6184	150	600	10	0	4729	1789	165	-60	48883
6-86	19002	12196	240	24	5834	151	566	7	0	5046	1576	149	-119	44672
	6.9%	20.5%	6.3%	75.0%	6.0%	-0.7%	6.0%	42.9%	0.0%	-6.3%	13.5%	10.7%	49.6%	9.4%
7-85	5530	12353	263	36	6239	150	620	9	0	4583	472	170	-35	30392
7-86	17340	10512	256	21	6041	155	624	6	0	5397	1404	168	-97	41827
	68.1%	17.5%	2.7%	71.4%	3.3%	-3.2%	-0.6%	50.0%	0.0%	-15.1%	-66.4%	1.2%	63.9%	-27.3%
SUMMER TOTAL														
	164576	118745	1767	369	45460	1011	4260	96	0	35009	13626	1650	-247	386303
	163549	106363	1732	177	41747	1029	4102	72	0	37546	12989	1986	40	371312
	0.6%	11.6%	2.0%	97.2%	8.9%	-1.7%	3.9%	33.3%	0.0%	-6.8%	4.9%	-16.9%	-717.5%	4.0%
WINTER TOTAL														
	307968	96031	745	568	56666	541	2990	194	0	26502	20593	65816	-55	553339
	300062	107789	771	429	31983	721	3004	190	0	25195	19514	63023	-142	551594
	1.0%	-10.9%	-3.4%	23.2%	14.6%	-25.0%	-0.5%	2.1%	0.0%	5.2%	5.5%	6.1%	61.3%	0.3%
YEAR TOTAL														
	667526	286776	2512	717	82126	1552	7250	290	0	61511	34219	67466	-302	939642
	663611	214152	2483	606	73735	1750	7106	262	0	62741	32503	64009	-102	922906
	0.6%	0.3%	1.2%	9.3%	11.4%	-11.3%	2.0%	10.7%	0.0%	-2.0%	5.3%	5.4%	-196.1%	1.8%

*NOTE: FEB WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH.

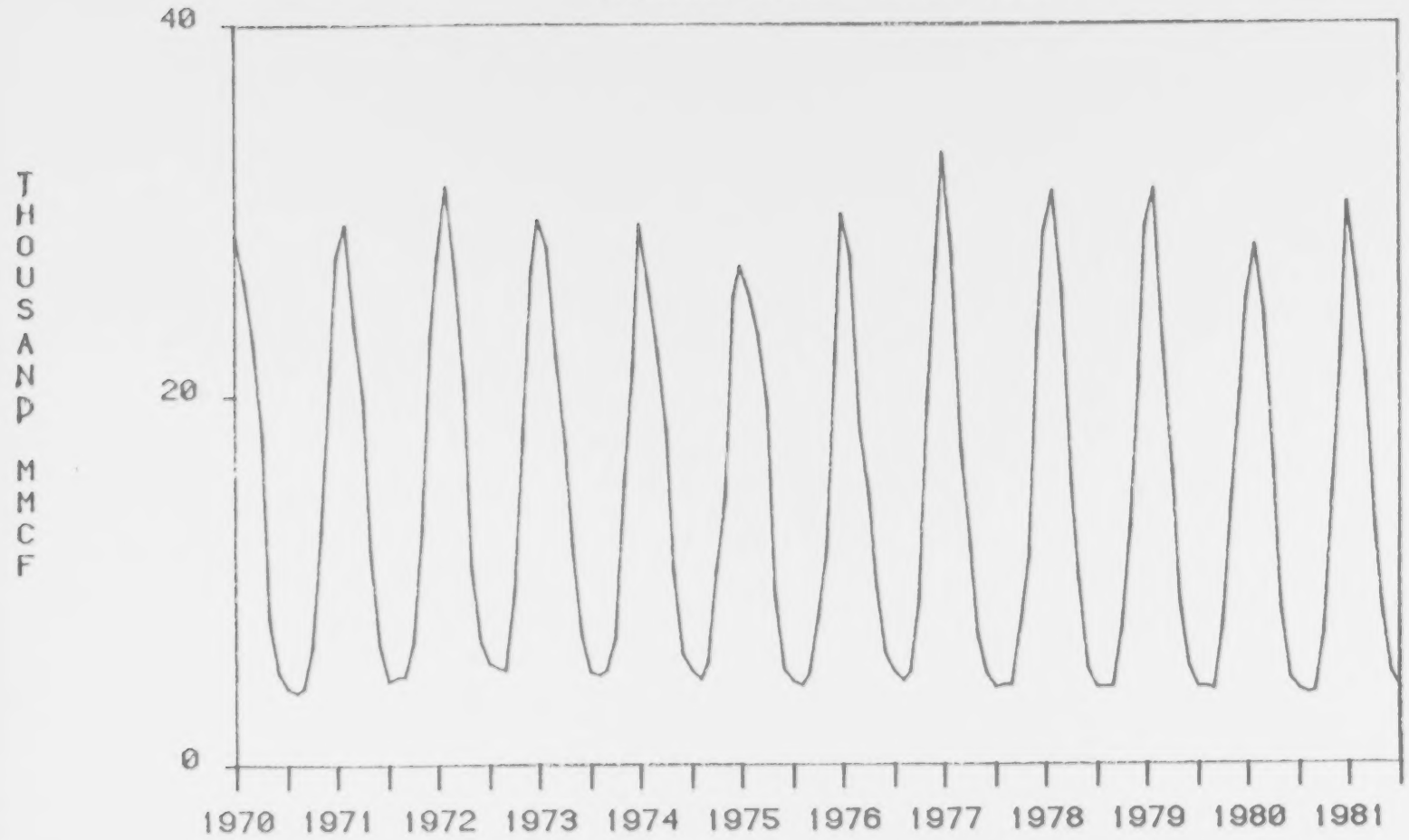
(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON ZERO VALUE AND THUS A DIVISION BY ZERO.

FIG. 11. MONTHLY OHIO RESIDENTIAL NATURAL GAS CONSUMPTION
JANUARY 1970 - JULY 1981



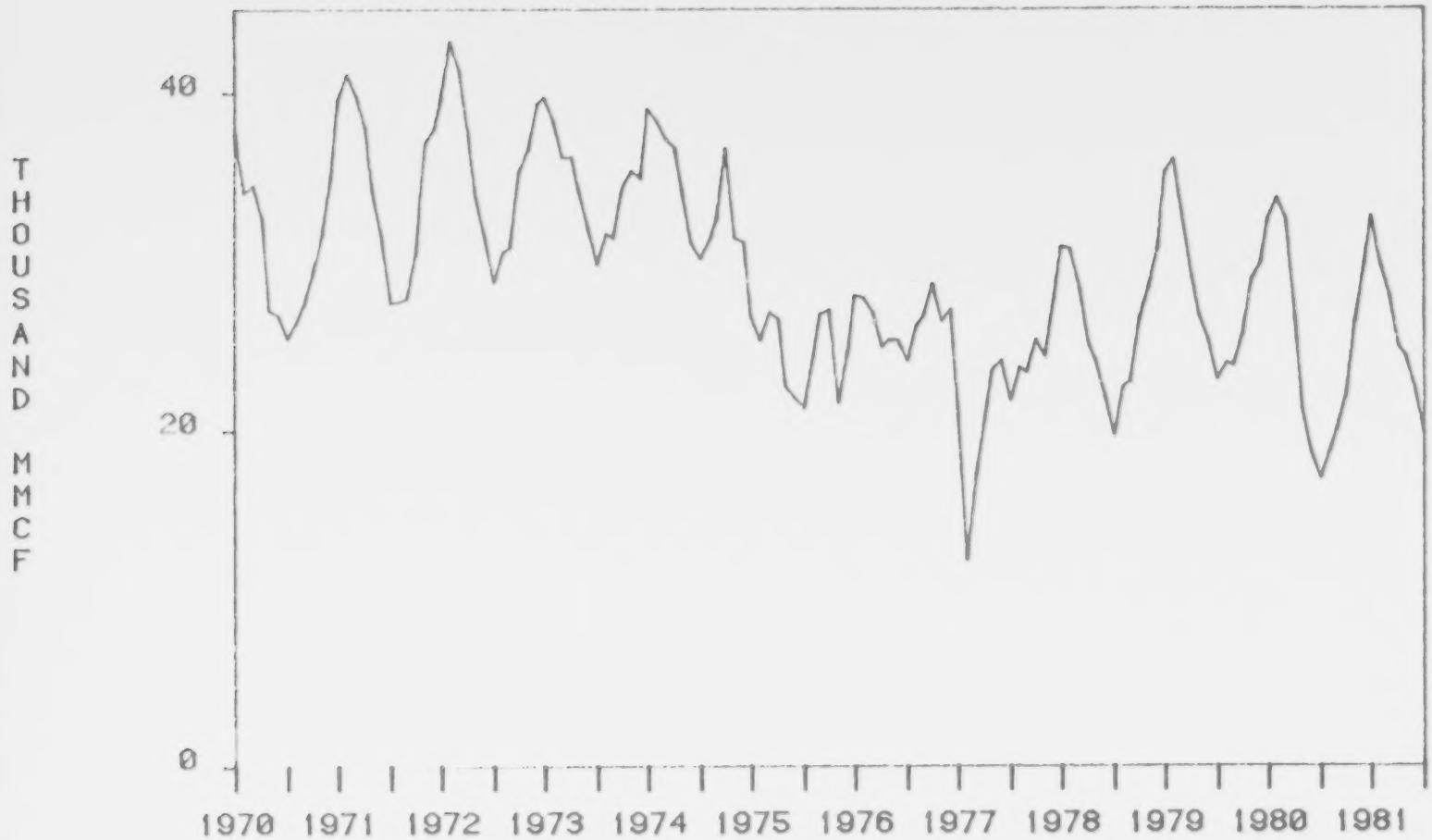
SOURCE: THE OHIO DEPARTMENT OF ENERGY

FIG. 12. MONTHLY OHIO COMMERCIAL NATURAL GAS CONSUMPTION
JANUARY 1970 - JULY 1981



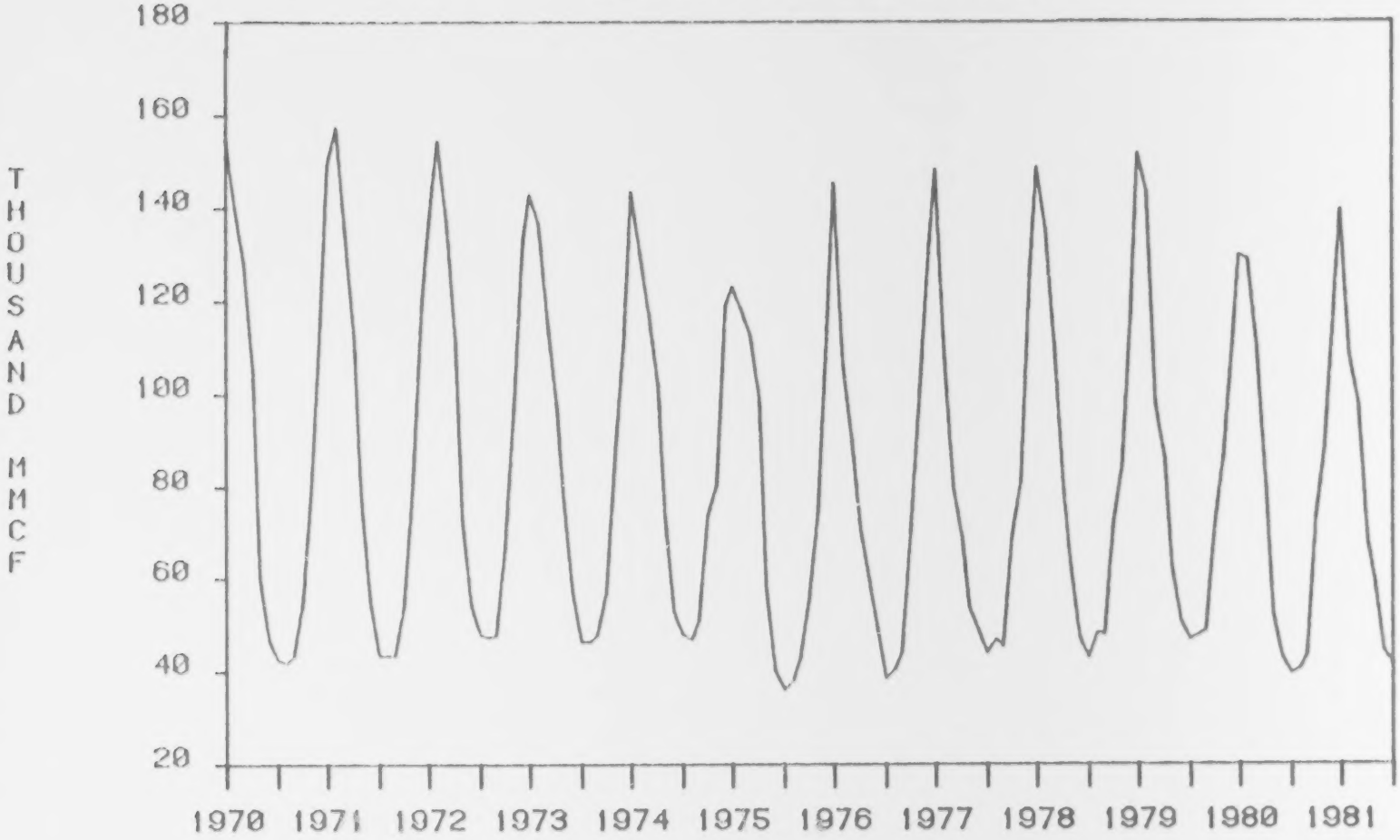
SOURCE: THE OHIO DEPARTMENT OF ENERGY

FIG. 13. MONTHLY OHIO INDUSTRIAL NATURAL GAS CONSUMPTION
JANUARY 1970 - JULY 1981



SOURCE: THE OHIO DEPARTMENT OF ENERGY

FIG. 14. MONTHLY OHIO TOTAL NATURAL GAS CONSUMPTION
JANUARY 1970 - JULY 1981



SOURCE: THE OHIO DEPARTMENT OF ENERGY

consumption levels during the heating as opposed to the non-heating seasons has increased over the past two years. The effects of curtailments enforced on the industrial sector during the 1976-77 heating season is dramatically shown in Figure 13.

Since natural gas is the primary source of space heating for the residential and commercial sectors, over 60 percent of the natural gas consumed in Ohio is used during the heating season. Table 11 shows the actual aggregate monthly requirements for the eight major utilities, between June 1980 and May 1981, along with the utilities' consolidated projections for the forth- coming twelve months. Figure 15 is a graphic representation of the utilities' consolidated sectoral projections for the forthcoming twelve months.

Forecasts of sectoral requirements for Ohio are presented in Appendix B, Tables B-5 through B-8, for the annual period November 1981-October 1982.

Historical Behavior of Annual Sectoral Requirements

In Figures 16-21 we have presented the annual sectoral natural gas consumption patterns observed in Ohio between 1960 and 1980. In Figure 22 we have indicated the relative shares of residential, commercial, industrial, and the combined electric utilities and transportation sectors in the Ohio total.

With the breakdown of the Bretton Woods International Monetary System in 1971, which eventually led to a one hundred percent depreciation in the U.S. dollar, and the OPEC price hikes of 1973, which permanently altered the structure of costs and expenditures in all sectors of the economy, there grew a gap between the opportunity cost of natural gas as determined in international, or interstate trade, and the federally

Table 11. Comparison Between One Year of Actual and Forecast Demand for Eight Major Ohio Gas Utilities by Sector (MMCF)

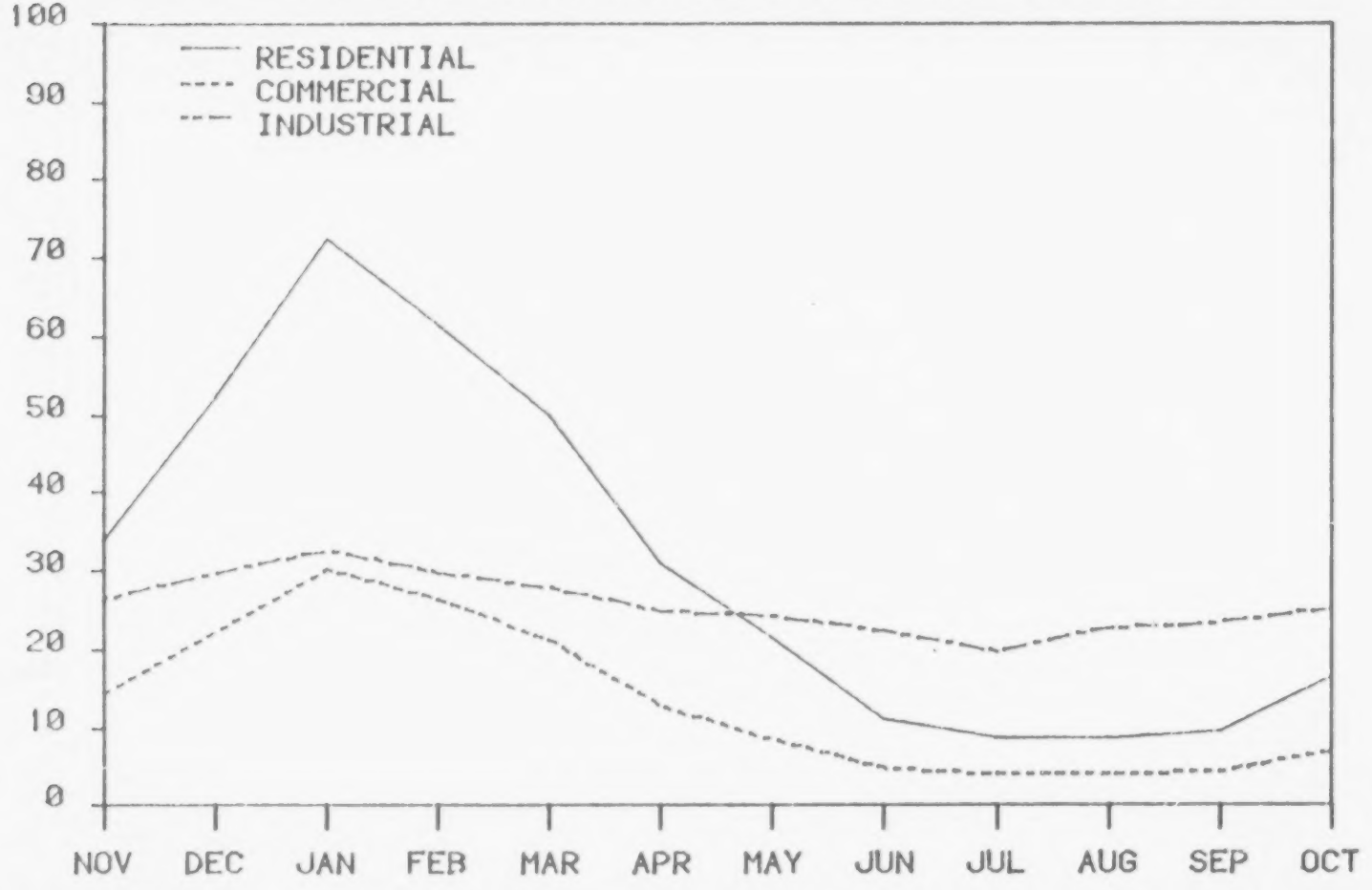
MONTH YEAR	DEGREE DAYS	RESIDENTIAL REQUIREMENT	COMMERCIAL REQUIREMENT	INDUSTRIAL REQUIREMENT	OTHER REQUIREMENT	STORAGE CUT	TOTAL REQUIREMENT	DEFICIENCY
8781	11	8765	4098	22824	1730	6992	46389	488
8780	11	8181	3892	18712	1099	8761	40645	0
	0.0%	6.9%	5.3%	22.0%	57.4%	2.6%	14.1%	999.9%
9781	87	7664	4429	23457	2822	8690	49062	-701
9780	87	7932	3959	20022	3028	8513	43455	0
	0.0%	21.8%	11.9%	17.2%	-6.8%	2.1%	12.9%	999.9%
10781	334	16603	7101	25273	11017	7023	67017	764
10780	334	16794	7165	22027	17191	9591	72778	0
	0.0%	1.1%	-1.2%	14.7%	-35.9%	-26.8%	-7.9%	999.9%
11781	690	31863	13598	27159	11860	0	84485	-1260
11780	664	33960	14548	26501	13483	55	88547	0
	0.6%	-6.2%	-6.5%	2.5%	-12.0%	-100.0%	-4.6%	999.9%
12781	1052	52300	22208	29171	11528	0	115207	-1169
12780	1028	52156	22197	29786	13322	12	117473	0
	2.3%	0.3%	0.0%	-2.0%	-13.5%	-100.0%	-1.9%	999.9%
1782	1161	65475	27644	31661	7467	1526	133572	1078
1781	1124	72449	30341	32697	3907	5	139399	0
	1.5%	9.6%	-8.9%	-3.2%	91.1%	26420.0%	-4.2%	999.9%
2782	980	60991	25790	31716	5308	1526	114515	-1119
2781	927	61561	26455	29857	6486	-357	100030	0
	8.3%	0.9%	-2.5%	6.2%	18.2%	139.5%	6.0%	999.9%
3782	823	52424	22241	29787	-4979	0	99473	-1461
3781	814	49836	21190	27930	-796	135	98145	0
	1.1%	5.1%	5.0%	6.6%	-399.9%	-100.0%	1.4%	999.9%
4782	735	56780	15670	27041	-8714	8508	79085	-1120
4781	455	50965	12834	24867	-6193	5673	67946	0
	61.5%	18.8%	22.1%	8.7%	56.3%	46.4%	16.4%	999.9%
5782	282	21187	9863	25118	-4230	10437	61555	-855
5781	196	21548	8532	24330	-3792	9573	59991	0
	43.9%	-1.7%	6.0%	5.2%	-6.0%	9.0%	2.6%	999.9%
6782	50	11868	5214	23724	-2483	10113	48456	427
6781	23	11236	4955	22415	-3163	9249	44672	0
	5.4%	5.6%	5.2%	5.8%	21.5%	9.3%	8.5%	999.9%
7782	5	5439	2550	11564	624	9821	29998	-594
7781	5	8596	4027	19841	735	9126	41827	0
	0.0%	36.7%	36.7%	41.7%	165.5%	7.6%	28.3%	999.9%
WINTER TOTAL								
	1404	110304	48105	159001	766	63384	381562	-4741
	1117	105254	45363	152214	7945	60486	371312	0
	25.7%	4.8%	6.0%	4.5%	-90.4%	4.8%	2.8%	999.9%
WINTER TOTAL								
	4686	263853	111480	149694	20568	2652	547252	-6067
	4629	270812	114231	146766	23230	3145	551594	0
	1.2%	-2.6%	-2.6%	1.9%	-11.5%	-84.3%	-0.8%	999.9%
YEAR TOTAL								
	6090	375364	159585	308695	21334	66036	928814	-10828
	5746	376066	159594	299980	31175	63631	922906	0
	6.0%	-0.2%	0.0%	3.2%	-31.6%	15.2%	0.6%	999.9%

NOTE: CEI WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

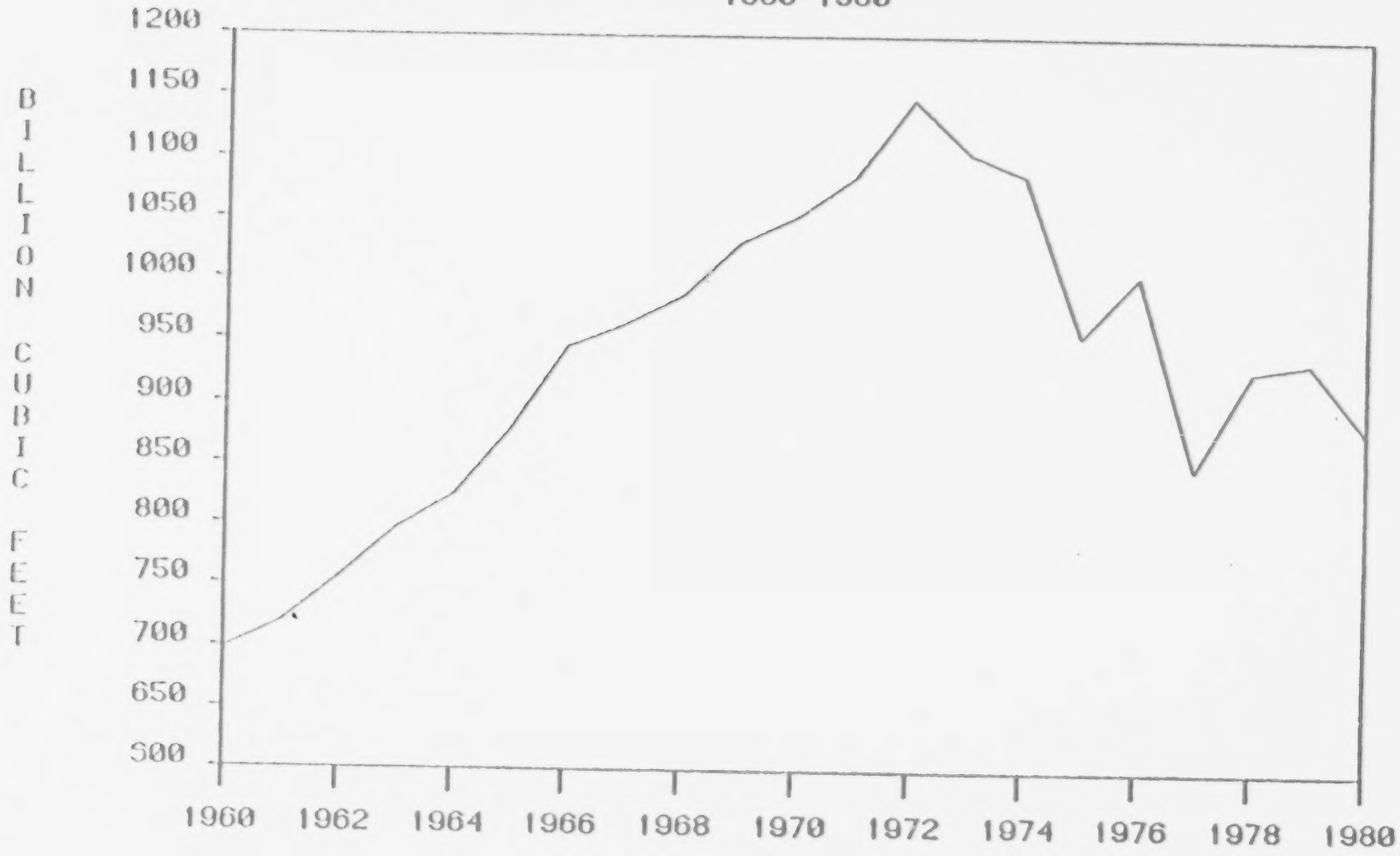
(3) A POSITIVE DEFICIENCY INDICATES SHORTAGE, A NEGATIVE DEFICIENCY INDICATES SURPLUS.

FIG. 15. PROJECTED GAS REQUIREMENTS FOR OHIO BY SECTOR FOR EIGHT MAJOR COMPANIES (NOV.1980-OCT.1981)



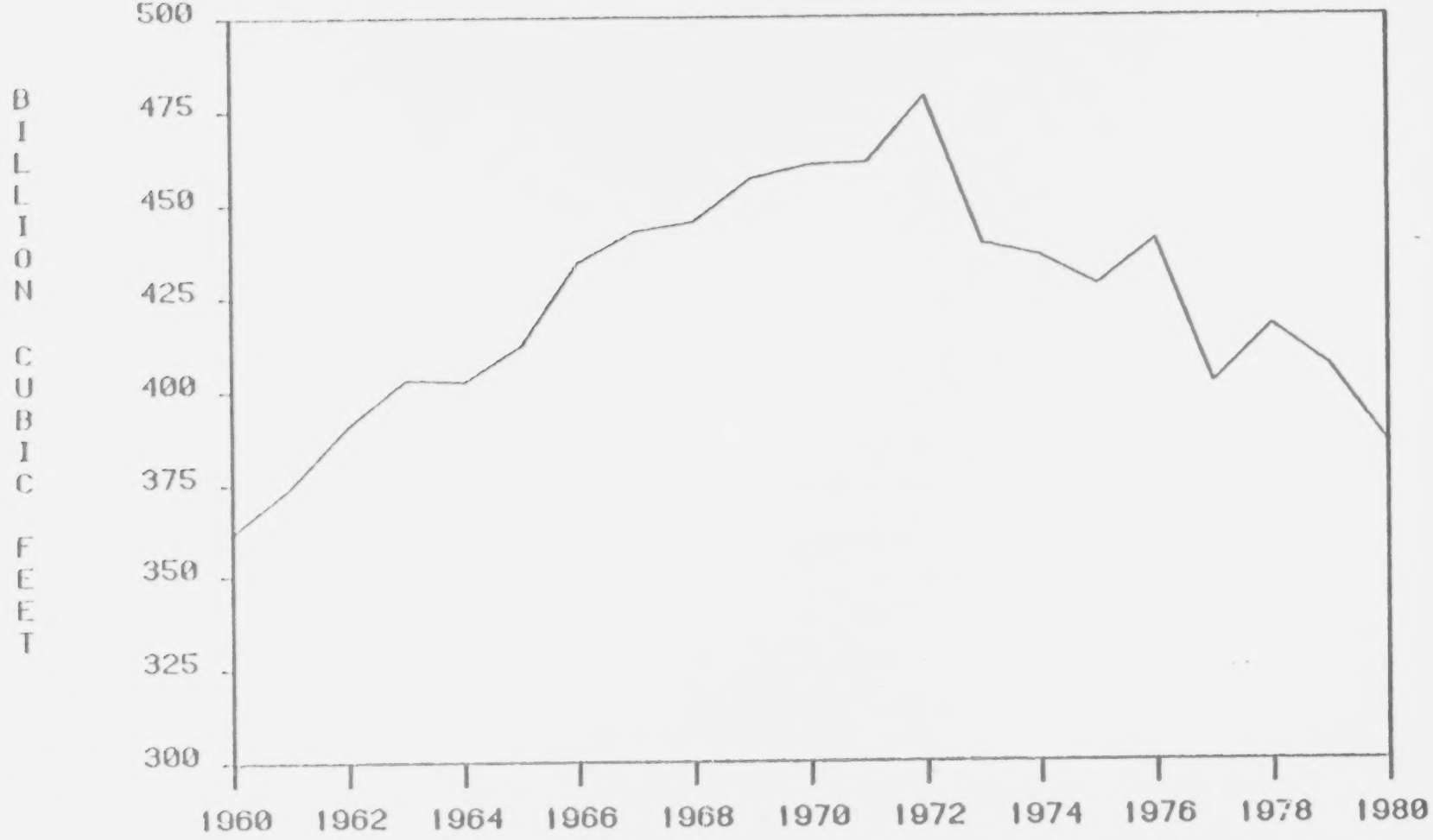
SOURCE: MONTHLY PROJECTIONS OF EIGHT MAJOR GAS UTILITIES AND THE OHIO DEPARTMENT OF ENERGY

FIGURE 16. OHIO TOTAL NATURAL GAS CONSUMPTION
1960-1980



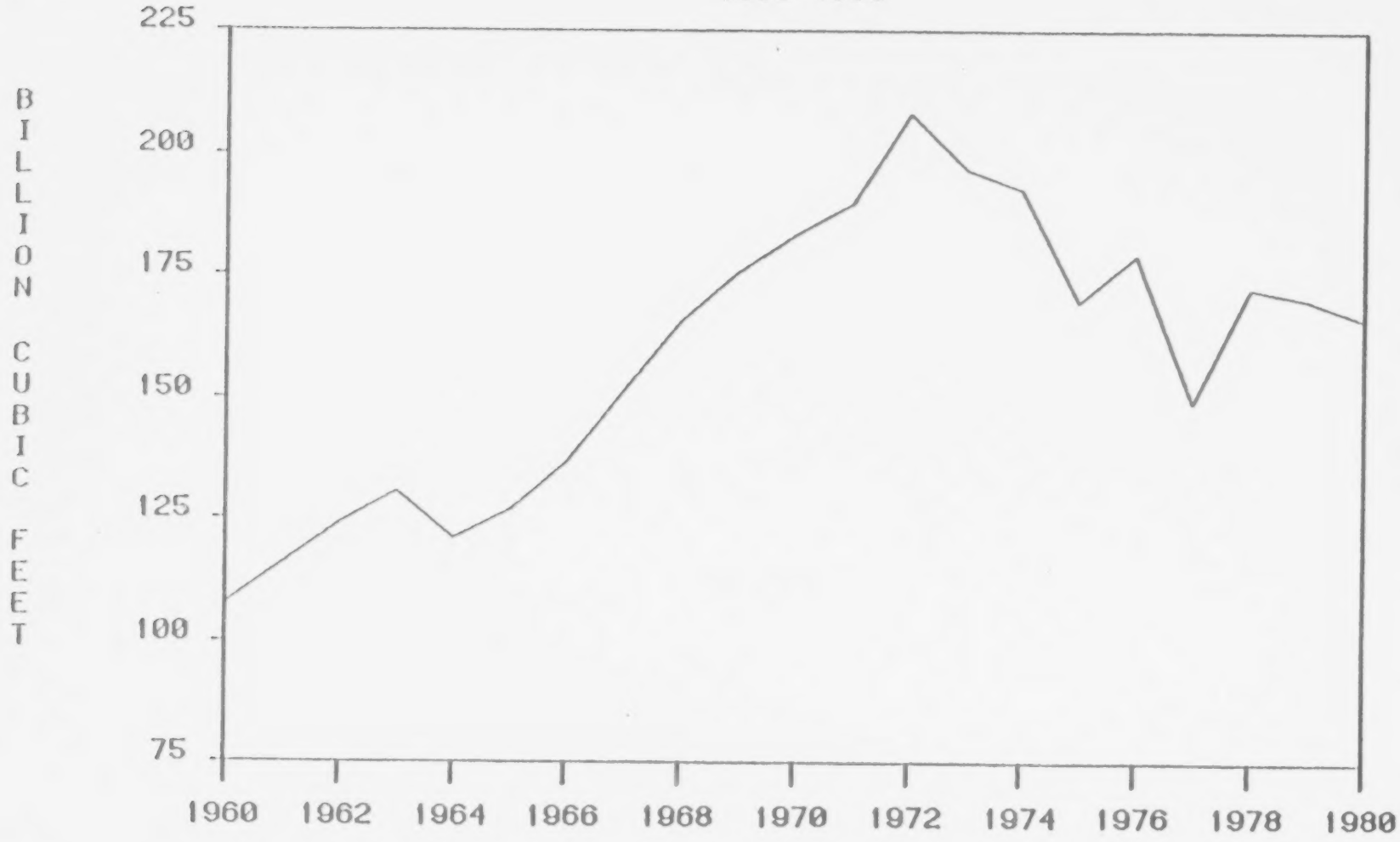
SOURCE: OHIO DEPARTMENT OF ENERGY

FIGURE 17. OHIO RESIDENTIAL NATURAL GAS CONSUMPTION
1960-1980



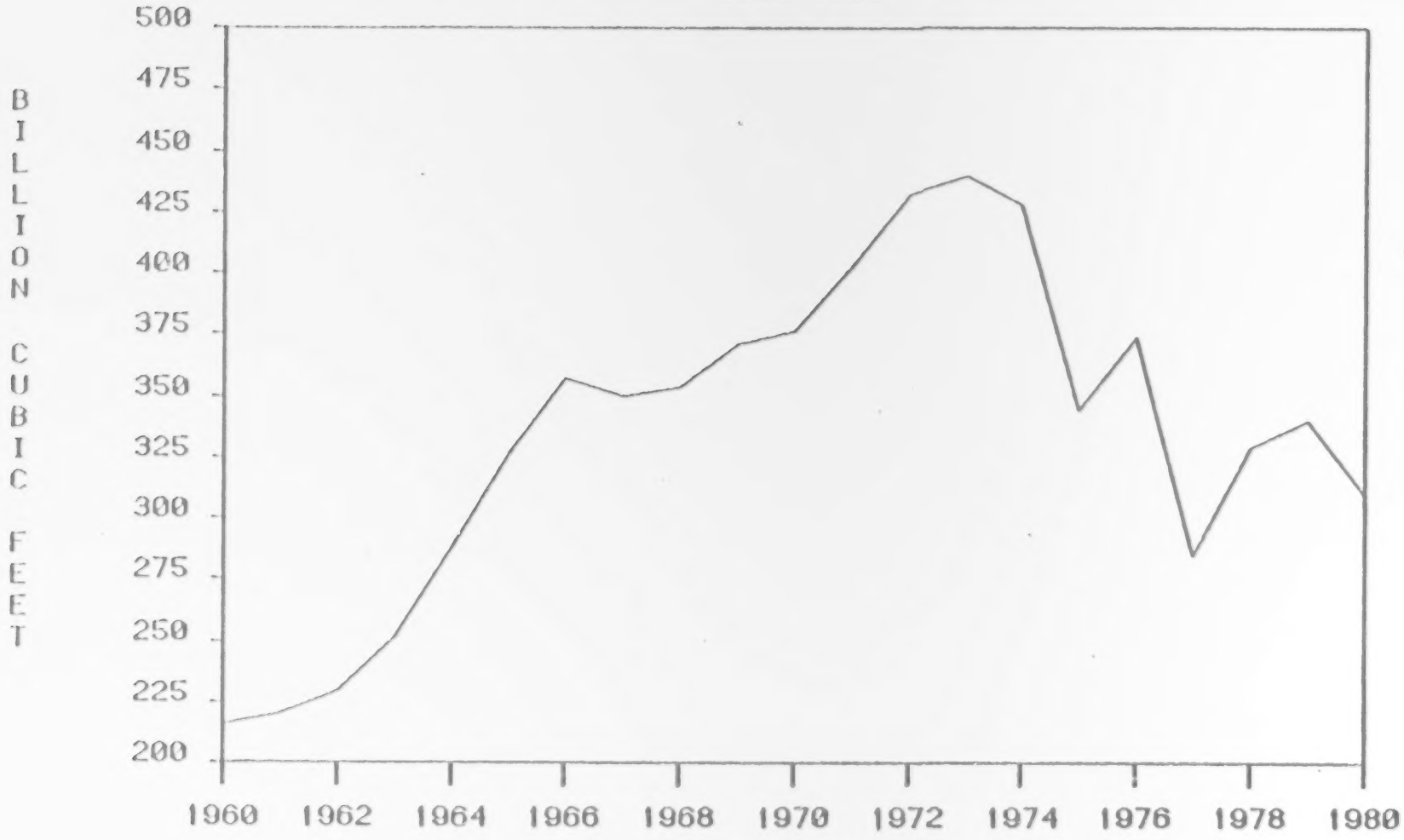
SOURCE: OHIO DEPARTMENT OF ENERGY

FIGURE 18. OHIO COMMERCIAL NATURAL GAS CONSUMPTION
1960-1980



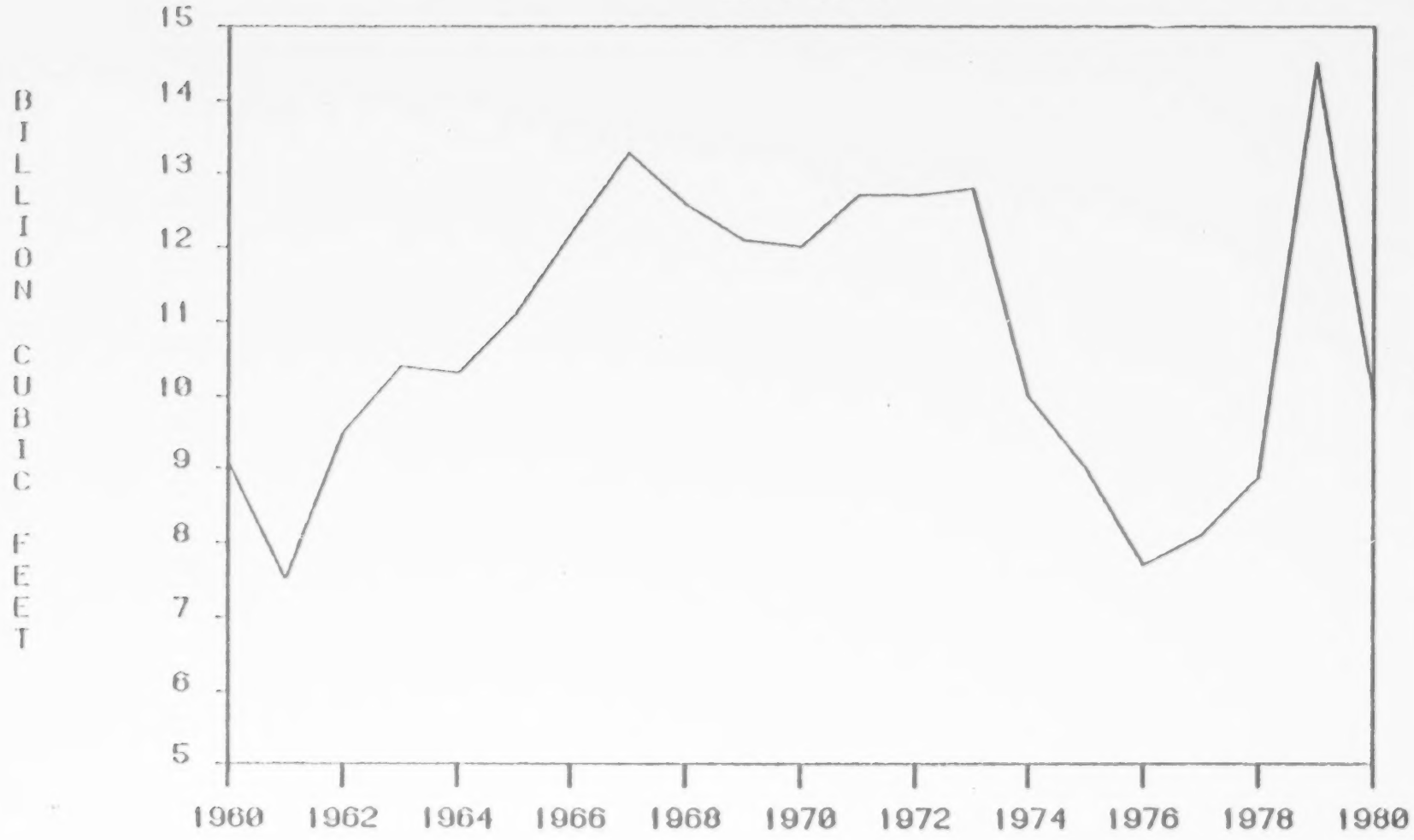
SOURCE: OHIO DEPARTMENT OF ENERGY

FIGURE 19. OHIO INDUSTRIAL NATURAL GAS CONSUMPTION
1960-1980



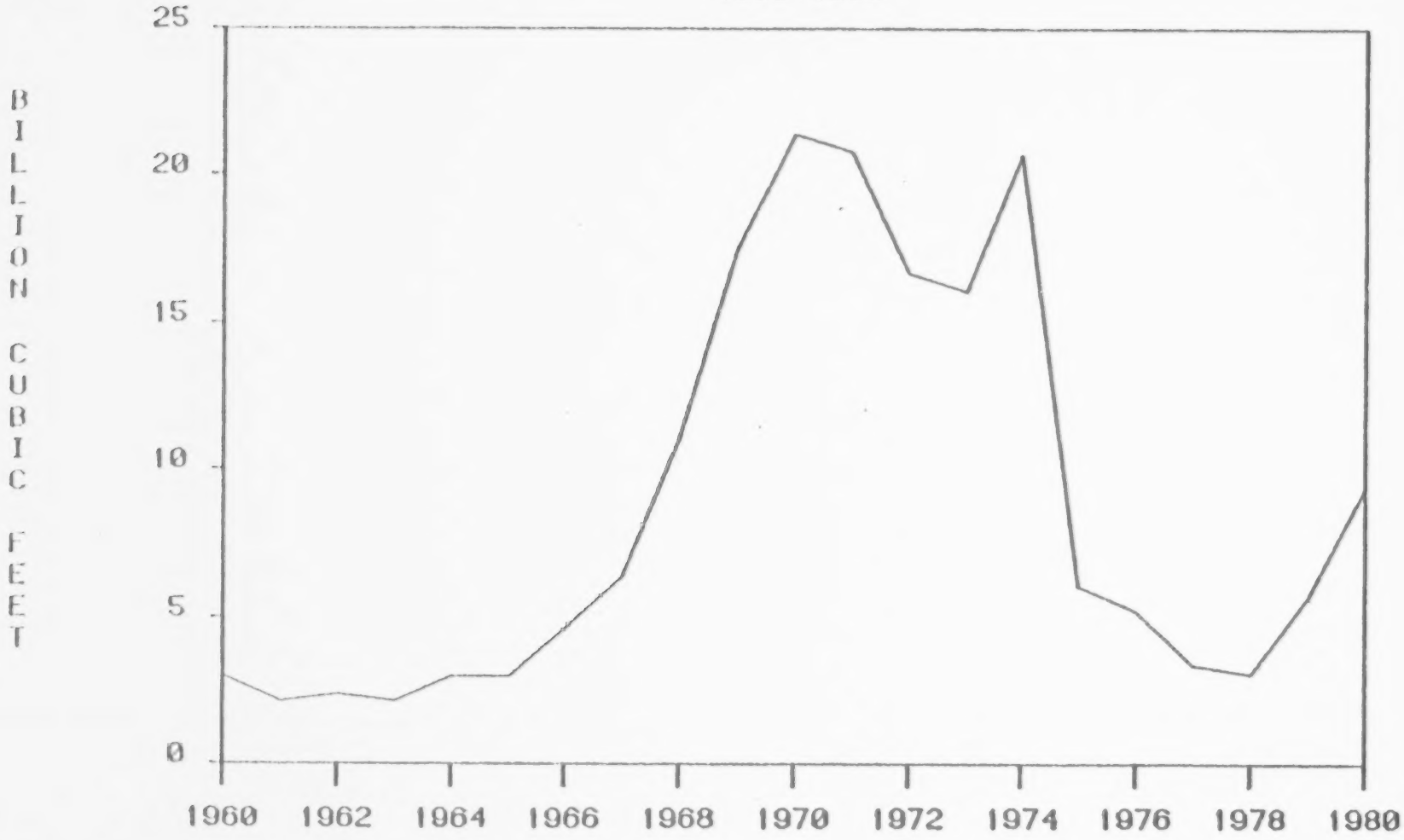
SOURCE: OHIO DEPARTMENT OF ENERGY

FIGURE 20. OHIO TRANSPORTATION NATURAL GAS CONSUMPTION
1960-1980



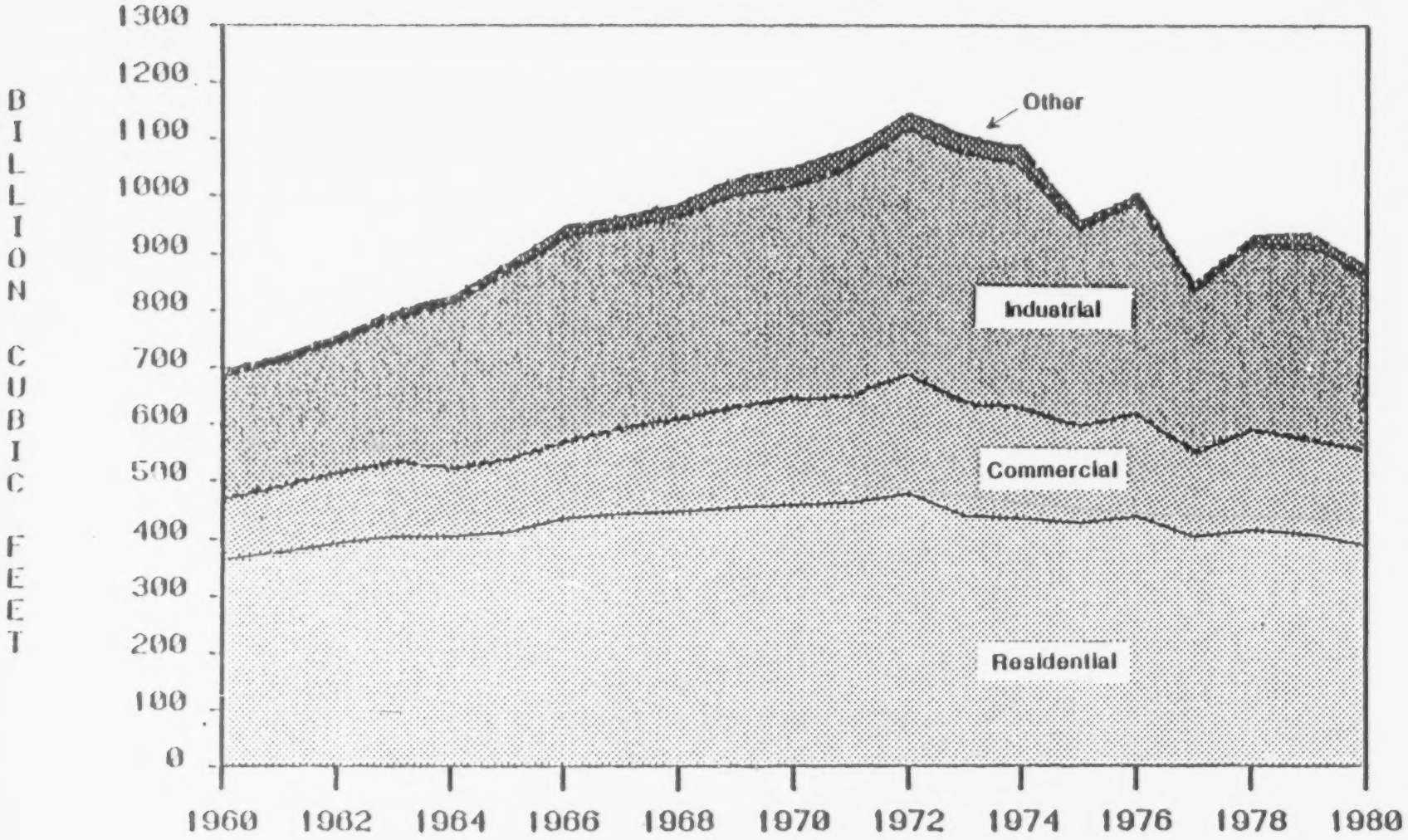
SOURCE: OHIO DEPARTMENT OF ENERGY

FIGURE 21. OHIO ELECTRIC UTILITY NATURAL GAS CONSUMPTION
1960-1980



SOURCE: OHIO DEPARTMENT OF ENERGY

FIGURE 22. OHIO NATURAL GAS CONSUMPTION BY SECTOR
1960-1980



NOTE: "OTHER" INCLUDES TRANSPORTATION AND ELECTRIC UTILITY CONSUMPTION.

SOURCE: OHIO DEPARTMENT OF ENERGY

regulated wellhead price for interstate commerce. As a result of this discrepancy, supplies of natural gas for interstate commerce continuously declined between 1973 and 1977.

Consequently, states such as Ohio, which depend on interstate natural gas as their major source of supply, suffered from natural gas shortages during this period in the sense that, at the prevailing price of natural gas, supplies were not sufficient to satisfy all prospective customers. In anticipation of this situation Ohio natural gas utilities applied for and were granted a ban on new customer hookups in 1972. This ban stayed in effect until the passage of the Natural Gas Policy Act of 1978.

Historical Behavior of Industrial Requirements

As a result of the reduction in aforementioned interstate supplies, base allocations of lower priority industrial and commercial customers were curtailed between 1973-1977, which led to extensive conservation in the industrial sector, and to fuel switching.

It was hoped that with the passage of the Natural Gas Policy Act of 1978, which decontrolled some natural gas prices immediately, and which foresees the decontrol of all natural gas prices by 1985, availability of natural gas supplies to Ohio customers in general, and to Ohio industrial customers, in particular, would be enhanced. Since the ban on new customer hookups has been lifted from all Ohio utilities, there is no question that the "unavailability" of supplies is not the reason why industrial requirements have declined in 1980. Rather, in contradistinction with the sixties, the severe recessions of 1974-75, and 1980-81 have, also, taken their toll in reducing the level of economic activity in general, and the industrial consumption of natural gas, in particular.

It is anticipated that as the economy recovers from the current recession, natural gas will still be a preferred fuel for industrial consumption, as long as its price per Btu remains competitive with the per Btu price of heating oil.

Historical Behaviors of Residential and Commercial Requirements

Although no new customer hookups were allowed between 1972 and 1978-79, the number of residential customers in Ohio has remained the same, for all practical purposes, during this period. However, the weather sensitivity of residential consumption during the same period of time, measured in terms of the change in the monthly volume of residential requirements in MMCF per degree day change per month, has been declining in the service areas of the four major Ohio natural gas utilities, as presented in Table 12. This fact is a clear reflection of the effectiveness of residential conservation measures implemented in Ohio, by ODOE and others.

There is no doubt that the major incentive for conservation in all sectors of the economy is the fact that the increases in energy costs between 1972 and 1980, eight-fold in the cost of imported oil and four-fold in Ohio natural gas prices, as indicated in Tables 19 and 20, have been far ahead of any increases in real per capita income. So much so that maintenance of discretionary expenditures on non-energy items has required severe reductions in the levels of energy consumption by residential, commercial, and industrial customers, in the U.S. in general, and in Ohio, in particular.

The Ohio Department of Energy has been instrumental in increasing the awareness of the public opinion in Ohio about the availability, and implementation of efficient, feasible, and practical conservation

Table 12. Weather Sensitivity of Residential Natural Gas Consumption in Ohio (1970-1980)

MMCF/Per Heating Degree-Day

Year	Cincinnati Gas and Electric	Columbia Gas	Dayton Power and Light	East Ohio Gas
1970	6.43	21.64	5.69	22.95
1971	6.96	24.04	6.04	23.57
1972	6.95	23.81	5.77	24.22
1973	6.78	23.68	5.72	23.04
1974	6.78	23.35	5.58	24.21
1975	6.83	22.73	5.61	24.34
1976	6.34	21.22	5.04	22.52
1977	5.15	18.95	4.79	20.44
1978	5.11	18.00	4.54	19.74
1979	5.10	18.48	4.53	20.68
1980	4.77	17.91	4.28	19.26

Source: O.S.U. Gas Model, monthly reports of four Ohio gas utilities and the Ohio Department of Energy.

measures. ODOE's leadership in providing prudent programs and services aimed to reduce the information and implementation costs to individual customers of the above mentioned types of conservation measures is one reason why conservation efforts in all sectors of Ohio have been much more successful then the national average throughout 1980. We expect 1981 to be an even better year than 1980 in terms of translating the public's need to conserve into effectual conservation.

In view of these considerations, dramatic changes in the behaviors of residential and commercial natural gas requirements are not expected in the near future merely because natural gas supplies have become more abundant. We expect residential and commercial requirements to stabilize around their 1978 or 1979 levels as the economy recovers from the current recession. Major climatic changes, such as a repeat of the winter of 1976, may create temporary increases in residential or commercial demands; but unless, and until, the share of energy expenditures in household budgets are reduced back to 1972 levels through dramatic increases in real per capita incomes, the attainment of 1972 levels of natural gas consumption does not seem to be a likely possibility in the near future.

Alternate Fuel Capability Profile

There were no natural gas curtailments in the September 1980 - August 1981 annual period, and neither the reporting Ohio gas utilities nor the gas pipeline companies projected any curtailments for the September 1981 - August 1982 period. Hence, there is no alternate fuel capability profile to be presented at this time.

Twelve - Month Outlook

On the basis of projected natural gas supplies, and the historically established trends in natural gas requirements, the outlook for the next twelve months indicates no shortages under normal or 10 percent colder than normal weather conditions.

Utility Forecasts

Utility forecasts for the next twelve months project no deficiencies for Ohio under normal or 10 percent colder than normal weather conditions. Aggregate supply and demand projections of the eight major utilities, as presented in Table 13 and Figure 23, indicate a 1.2 percent annual surplus of natural gas supplies over demand. All eight utilities project supply to be in excess of demand during the 1981-82 heating season. Supply and demand projections of the individual utilities, as submitted in their "Monthly Reports of Supply and Demand of Natural Gas", are summarized in Appendix B, Table B-10.

Independent Forecast

The law which created the Ohio Department of Energy requires the development of independent ODOE forecasting capability within the department and the preparation of independent forecasts. Independent natural gas demand forecasts based on two alternate methodologies have been developed by ODOE for the eight major gas utilities serving Ohio. The first methodology employs regression analysis to forecast demand for each major utility as a function of the normal and 10 percent colder than normal temperature scenarios on the basis of the most recent ODOE Form SG-2's submitted by the respective utilities. The second methodology employed by the ODOE to forecast natural gas demand in each major utility service area is based upon Box-Jenkins type time series models of monthly

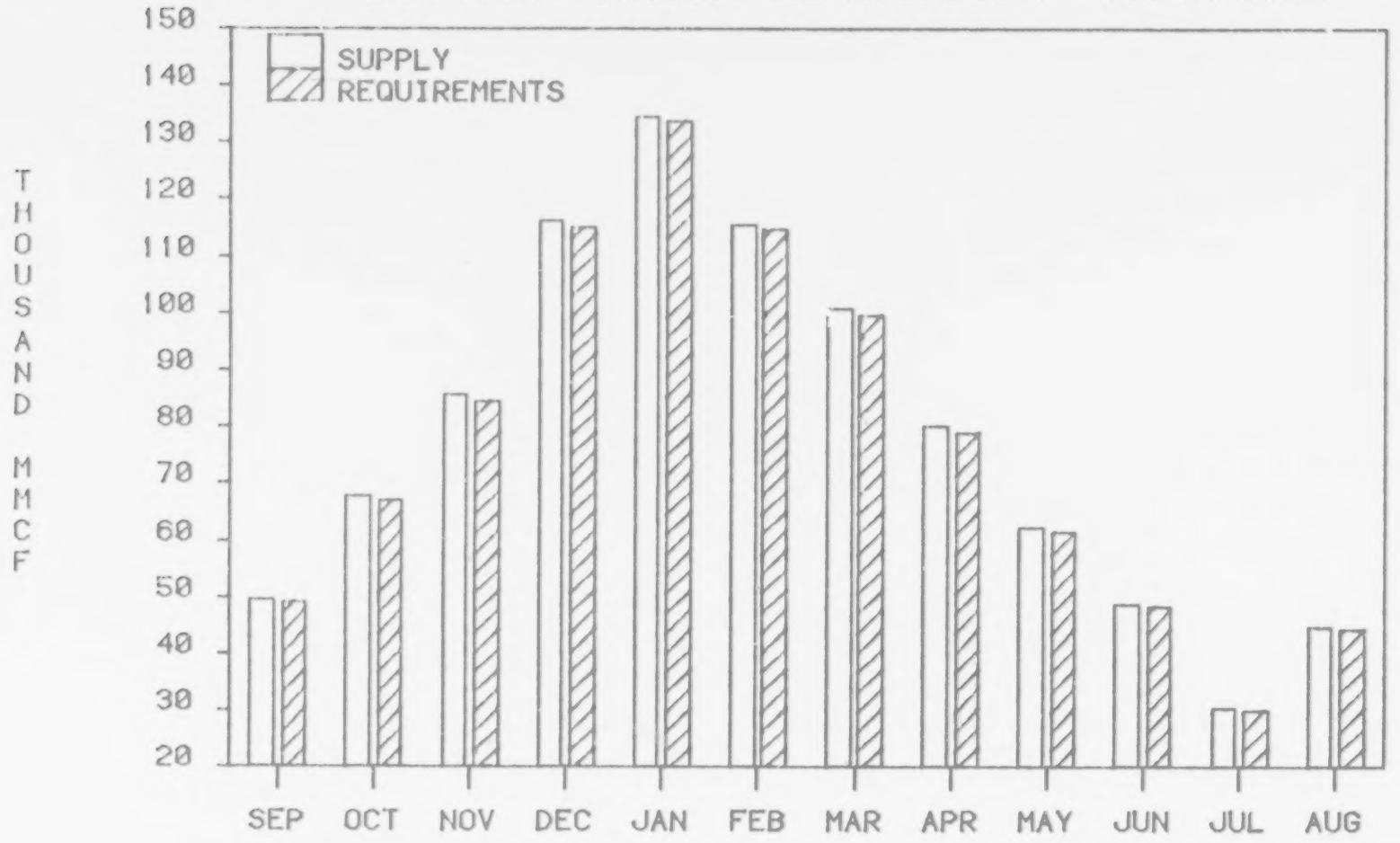
Table 13. Projected Aggregate Supply and Requirements
for Natural Gas for Eight Major Utilities
(September 1981 - August 1982)
(MMCF)

Month/Year	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	8/82	Summer Totals	Winter Totals	Annual Totals
Supply	49,263	67,781	85,745	136,376	134,650	115,634	100,934	80,205	62,410	48,883	30,392	44,987	384,421	553,339	937,760
Requirements	49,062	67,017	84,485	135,207	133,572	114,515	99,473	79,085	61,555	48,456	29,998	44,540	379,743	547,252	926,995
Deficiency	-201	-764	-1,260	-1,169	-1,078	-1,119	-1,461	-1,120	-855	-427	-394	-447	-4,705	-6,087	-10,765
Percent Deficiency	-1.4	-1.1	-1.5	-1.0	-0.8	-1.0	-1.5	-1.4	-1.4	-0.9	-1.3	-1.0	-1.2	-1.1	-1.2

Note: A positive deficiency indicates a shortage; a negative deficiency indicates a surplus.

Source: DOE Form 5A-I of eight major gas utilities and the Ohio Department of Energy.

FIG. 23. PROJECTED SUPPLY AND REQUIREMENTS OF NATURAL GAS
EIGHT MAJOR COMPANIES (SEPTEMBER 1981 - AUGUST 1982)



natural gas requirements of the respective utilities between January 1970 and May 1981. Such models when properly identified yield projections that possess desirable statistical properties and are deemed to be as accurate as, or more accurate than, alternative short-term forecasting techniques. They also have the added flexibility of yielding updated forecasts every time the most recent actual monthly requirements are reported to ODOE. The use of alternative methodologies is expected to provide a double check and reduce forecasting error, and thus, lead to a more accurate and decisive diagnosis of energy requirements of the state.

The results obtained on the basis of both methodologies for the 1981-1982 heating season are presented in Tables 14 through 18. It can be concluded from these tables that no shortages or curtailments of natural gas are expected during the 1981-82 heating season.

Independent forecasts of the four large utilities' total requirements for the annual period November 1981-October 1982, are presented in Appendix B, Tables B-1 through B-4. In Tables B-5 through B-8 of Appendix B we present twelve-month forecasts of sectoral end-use requirements for the state as a whole. The forecasts included in Tables B-5 through B-8 have been adjusted for the long-term historical trends observed in sectoral natural gas requirements in Ohio.

Quantitative Analyses of Historical Natural Gas Requirements in Ohio

As indicated in Figures 16 through 22, the behavior of annual natural gas disposition, in all sectors of Ohio, has displayed distinctly different trends, during the sixties and early seventies, as opposed to the rest of the seventies and the early eighties. Such discontinuous time variant trends characterize the behavior of almost all sectoral energy disposition in Ohio as well as the nation.

Table 14. Independent Forecasts of Natural Gas Supply and Demand for the Eight Major Ohio Gas Utilities
November 1981 - March 1982
(MMCF)

	Normal Weather			10% Colder Than Normal			10% Colder Than Normal Weather Supply vs. Time Series Projections of Demand		
	Supply	Demand	Surplus (Deficiency)	Supply	Demand	Surplus (Deficiency)	Supply	Demand	Surplus (Deficiency)
Cincinnati Gas & Electric	56,805	56,492	313	60,266	60,667	(401)	60,266	60,751	(485)
Columbia Gas	208,465	202,863	5,602	221,254	216,369	4,885	221,254	203,479	17,775
Dayton Power & Light	58,456	38,650	19,806	41,081	41,707	(626)	41,081	43,101	(2,020)
East Ohio Gas	209,133	208,764	369	220,826	219,658	1,168	220,826	225,882	(5,056)
National Gas	7,080	5,625	1,455	7,112	5,802	1,310	7,112	6,346	766
Ohio Gas	9,663.4	4,789	4,874.4	9,789.8	5,144	4,645.8	9,789.8	5,138.1	4,651.7
River Gas	3,020	2,948	72	3,181	3,105	76	3,181	3,181	0
West Ohio Gas	9,107	9,252	145	9,696	9,915	(219)	9,696	9,696	0
Total	561,729.4	529,383	32,346.4	573,205.8	562,367	10,838.8	573,205.8	557,574.1	15,631.7

Note: Numbers within parentheses indicate deficiency.

Source: November, 1981, ODOE Form 56-2 of reporting utilities, and the Ohio Department of Energy.

Table 15. Independent Forecasts of Gas Supply
and Demand for Cincinnati Gas and Electric Company
November 1981 - March 1982
(MMCF)

	Normal Weather				10% Colder Than Normal Weather				10% Colder Than Normal Weather Supply vs. Time Series Projections of Demand		
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)	Supply	Demand	Surplus (Deficiency)
November 1981	8,667	636	9,172	(505)	9,227	700	9,798	(571)	9,227	8,796	431
December 1981	12,889	970	12,439	450	13,449	1,067	13,387	62	13,449	12,917	532
January 1982	12,496	1,054	13,231	(735)	13,421	1,156	14,258	(837)	13,421	15,336	(1,915)
February 1982	12,053	888	11,637	416	12,884	977	12,507	327	12,834	12,884	(50)
March 1982	10,780	727	10,013	687	11,335	794	10,717	618	11,335	10,818	517
Total	56,885		56,492	313	60,266		60,667	(401)	60,266	60,751	(485)

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days.
Numbers within parentheses indicate deficiency.

Source: Cincinnati Gas & Electric's November, 1981 DOE Form SG-2, and the Ohio Department of Energy.

Table 16. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio November 1981 - March 1982 (MMCF)

	Normal Weather				10% Colder Than Normal Weather				10% Colder Than Normal Weather Supply vs. Time Series Projections of Demand		
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)	Supply	Demand	Surplus (Deficiency)
November 1981	31,925	570	29,881	2,044	33,341	627	31,515	1,826	33,341	24,076	9,265
December 1981	44,763	951	40,808	3,955	47,263	1,046	43,532	3,731	47,263	33,380	13,883
January 1982	52,216	1,173	47,175	5,041	55,400	1,290	50,530	4,870	55,400	45,237	10,163
February 1982	42,468	1,102	45,138	(2,670)	45,540	1,212	48,293	(2,753)	45,540	53,969	(8,429)
March 1982	37,093	918	39,861	(2,768)	39,710	1,010	42,499	(2,789)	39,710	46,817	(7,107)
Total	208,465		202,863	5,602	221,254		216,369	4,885	221,254	203,479	17,775

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days.
Numbers within parentheses indicate deficiency.

Source: Columbia Gas of Ohio's November, 1981, OBOE Form SG-2, and the Ohio Department of Energy.

Table 17. Independent Forecasts of Gas Supply and Demand for Dayton Power and Light November 1981 - March 1982 (MMCF)

	Normal Weather				10% Colder Than Normal Weather				10% Colder Than Normal Weather Supply vs. Time Series Projections of Demand		
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)	Supply	Demand	Surplus (Deficiency)
November 1981	5,386	482	4,934	-452	5,689	530	5,263	426	5,689	5,832	(143)
December 1981	7,839	865	7,565	-274	8,386	952	8,163	223	8,386	8,408	(22)
January 1982	8,898	1,111	9,255	357	9,597	1,222	10,018	(421)	9,597	10,878	(1,281)
February 1982	9,200	1,135	9,420	220	9,918	1,249	10,203	(285)	9,918	10,333	(415)
March 1982	6,956	852	7,476	520	7,491	937	8,060	(569)	7,491	7,650	(159)
Total	38,279		38,650	371	41,081		41,707	(626)	41,081	43,101	(2,020)

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days.
Numbers within parentheses indicate deficiency.

Source: Dayton Power and Light's November, 1981, ODOE Form SG-2, and the Ohio Department of Energy.

Table 18. Independent Forecasts of Gas Supply
and Demand for East Ohio Gas
November 1981 - March 1982
(MMCF)

	Normal Weather				10% Colder Than Normal Weather				10% Colder Than Normal Weather Supply vs. Time Series Projections of Demand		
	Supply	HDD	Demand	Surplus (Deficiency)	Supply	HDD	Demand	Surplus (Deficiency)	Supply	Demand	Surplus (Deficiency)
November 1981	32,576	534	32,438	138	34,259	587	33,593	666	34,259	35,444	(1,185)
December 1981	43,886	983	42,231	1,655	46,486	1,081	44,368	2,118	46,486	48,231	(1,745)
January 1982	49,009	1,197	46,898	2,111	51,875	1,317	49,515	2,360	51,875	55,775	(3,900)
February 1982	44,620	1,155	45,599	(979)	47,064	1,271	48,512	(1,448)	47,064	47,061	(3)
March 1982	39,042	954	41,598	(2,555)	41,142	1,049	43,670	(2,528)	41,142	39,311	1,831
Total	209,133		208,764	369	220,826		219,658	1,168	220,826	225,882	(5,002)

Notes: Totals may not add due to independent rounding.
HDD - Heating Degree-Days.
Numbers within parentheses indicate deficiency.

Source: East Ohio Gas Company's November, 1981 DOE Form 56-2, and the Ohio Department of Energy.

Table 19. Ohio Natural Gas Prices in Current Dollars, 1970-1980
($ Per MMBtu)

Year	Residential	Commercial	Industrial
1970	0.84	0.73	0.52
1971	0.96	0.81	0.56
1972	1.02	0.86	0.62
1973	1.08	0.94	0.65
1974	1.23	1.07	0.85
1975	1.51	1.35	1.12
1976	1.79	1.63	1.43
1977	2.23	2.07	1.95
1978	2.43	2.24	2.05
1979	2.78	2.57	2.32
1980[1]	4.23	3.50	3.06

Note: [1]1980 figures represent the first three quarters of 1980 for the east north central region of the United States.

Source: American Gas Association's Gas Facts.

Table 20. Ohio Natural Gas Prices in Constant Dollars, 1970-1980
(Dollars per MMBtu)
(1972 = 100)

Year	Residential	Commercial	Industrial
1970	0.92	0.80	0.57
1971	1.00	0.84	0.58
1972	1.02	0.86	0.62
1973	1.02	0.89	0.61
1974	1.06	0.92	0.73
1975	1.19	1.06	0.88
1976	1.34	1.22	1.07
1977	1.57	1.46	1.38
1978	1.60	1.47	1.35
1979	1.68	1.55	1.40
1980	2.38	1.97	1.72

Note: All prices are stated in terms of 1972 dollars. Unadjusted figures for 1980 represent the first three quarters of 1980 for the east north central region of the United States.

Source: Gas Facts, the American Gas Association; Statistical Abstract of the United States 1980, U.S. Department of Commerce.

At the Ohio Department of Energy we have developed an analytical methodology for the modeling and assessment of discontinuous time variant trends in annual economic data series, in general, and in annual energy data series, in particular. As a result of this development we are in a position to distinguish between temporary deviations from established trends, such as those due to recessions or severe climatic conditions, and changes in established long term trends. Continued application of this methodology will lead to increased understanding of the systemic factors which are responsible for the observed discontinuities in the historical time paths of the corresponding data series. Extraction of such critical information from historical observation will invariably lead to more accurate forecasts of Ohio's future energy requirements by sector or by fuel type, and help identify possible shortages before they develop into critical proportions.

A time path model of historical natural gas end user requirements in Ohio is presented in Tables 21 and 21A, with sectoral end-user forecasts for calendar year 1982 included in Table 22.

The implications of the estimated model are consistent with the discussion of the sectoral behaviors of historical natural gas requirements presented in the preceding pages. More precise quantifications of the relations between unemployment rates, weather conditions, or natural gas prices and historical requirements are under consideration at this time.

SYSTEM: SYST001

Table 21. Integrated Time Path Models of Sectoral Ohio Natural Gas Requirements

MODEL: NGRS
DEP VAR: NGRSPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	367.298819	2.190927	167.6454	0.0001	
T	1	9.325845	0.328453	29.9155	0.0001	
D10	1	-17.934991	0.622488	-28.8118	0.0001	
D72	1	32.840539	3.746295	8.7661	0.0001	
D73	1	19.776578	3.847372	5.1403	0.0001	
D7879	1	15.104259	3.355280	4.5016	0.0004	

MODEL: NGCM
DEP VAR: NGCXPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	103.577918	1.674894	61.8415	0.0001	
T	1	10.598985	0.318146	33.3149	0.0001	
DUMC	1	-26.690703	2.698128	-9.8923	0.0001	
D12	1	-15.636038	0.583522	-26.7961	0.0001	
D76	1	-19.616823	2.998911	-6.5413	0.0001	
D77	1	-32.655505	3.081382	-10.5977	0.0001	

MODEL: NGIX
DEP VAR: NGIXPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	220.605351	3.088938	71.4179	0.0001	
T2	1	34.166193	1.211113	28.2106	0.0001	
T6	1	-31.819023	1.855527	-17.1482	0.0001	
T10	1	26.667946	1.045604	25.5048	0.0001	
T13	1	-54.731110	1.938832	-28.2289	0.0001	
D75	1	-57.540214	6.503919	-8.8470	0.0001	
D77	1	-67.208614	7.149714	-9.4002	0.0001	
DUM13	1	38.798452	7.750457	5.0060	0.0002	

MODEL: NGOX
DEP VAR: NGOXPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	13.114611	0.943148	13.9051	0.0001	
T6	1	5.531408	0.436223	12.7949	0.0001	
T10	1	-8.732955	0.675098	-12.9358	0.0001	
DUM13	1	14.713333	2.659567	5.5322	0.0001	

Table 21. Integrated Time Path Models of Sectoral Ohio Natural Gas Requirements (Cont'd)

MODEL: NGIT
DEP VAR: NGITPOH

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	APPROX PROB>|T|	VARIABLE LABEL
INTERCEPT	1	704.596700	4.277341	164.7277	0.0001	
I	1	20.424830	0.561853	36.3526	0.0001	
I2	1	34.166193	1.543872	22.1302	0.0001	
I5	1	-26.237615	2.296133	-11.4269	0.0001	
I12	1	-15.636093	0.799020	-19.5691	0.0001	
I13	1	-54.731110	2.471535	-22.1446	0.0001	
D2	1	32.840539	5.129826	6.4019	0.0002	
D5	1	-77.157037	8.067809	-9.5636	0.0001	
D6	1	19.776578	5.268231	3.7539	0.0056	
D7	1	-99.864119	8.975528	-11.1263	0.0001	
D7379	1	15.104259	4.594407	3.2875	0.0111	
DUMC	1	-26.690703	3.694564	-7.2243	0.0001	
DUM13	1	53.511785	10.370674	5.1599	0.0009	

SYSTEM: SYST091

Table 21-A. (Statistical Summary) Integrated Time Path Models of Sectoral Ohio Natural Gas Requirements

COVARIANCE ACROSS MODELS

	NGRS.NGRSPOH	NGCM.NGCXPOH	NGIX.NGIXPOH	NGOX.NGOXPOH	NGTT.NGTTPOH
NGRS.NGRSPOH	15.87894881	-4.19151568	1.76539600	3.41680938	6.43552493
NGCM.NGCXPOH	-4.19151568	7.45752380	-2.51365096	-1.52771139	-0.93154398
NGIX.NGIXPOH	1.76539600	-2.51365096	26.70999825	1.78898676	17.25840252
NGOX.NGOXPOH	3.41680938	-1.52771139	1.78898676	7.07505941	4.64100927
NGTT.NGTTPOH	6.43552493	-0.93154398	17.25840252	4.64100927	26.63001310

CORRELATION ACROSS MODELS

	NGRS.NGRSPOH	NGCM.NGCXPOH	NGIX.NGIXPOH	NGOX.NGOXPOH	NGTT.NGTTPOH
NGRS.NGRSPOH	1.00000000	-0.38517926	0.08572240	0.32236273	0.31295898
NGCM.NGCXPOH	-0.38517926	1.00000000	-0.17810279	-0.21031921	-0.06610288
NGIX.NGIXPOH	0.08572240	-0.17810279	1.00000000	0.13013831	0.64710980
NGOX.NGOXPOH	0.32236273	-0.21031921	0.13013831	1.00000000	0.33811287
NGTT.NGTTPOH	0.31295898	-0.06610288	0.64710980	0.33811287	1.00000000

INV CORRELATION ACROSS MODELS

	NGRS.NGRSPOH	NGCM.NGCXPOH	NGIX.NGIXPOH	NGOX.NGOXPOH	NGTT.NGTTPOH
NGRS.NGRSPOH	1.42095395	0.53490165	0.38019197	-0.19584032	-0.58915157
NGCM.NGCXPOH	0.53490165	1.29517883	0.43768989	0.18790833	-0.42855486
NGIX.NGIXPOH	0.38019197	0.43768989	1.92816289	0.19294712	-1.40302293
NGOX.NGOXPOH	-0.19584032	0.18790833	0.19294712	1.23615333	-0.46910606
NGTT.NGTTPOH	-0.58915157	-0.42855486	-1.40302293	-0.46910606	2.22257224

INV COVARIANCE ACROSS MODELS

	NGRS.NGRSPOH	NGCM.NGCXPOH	NGIX.NGIXPOH	NGOX.NGOXPOH	NGTT.NGTTPOH
NGRS.NGRSPOH	0.08948665	0.04915478	0.01846100	-0.01847678	-0.02865039
NGCM.NGCXPOH	0.04915478	0.17367411	0.03101218	0.02586924	-0.03041049
NGIX.NGIXPOH	0.01846100	0.03101218	0.07218881	0.01403577	-0.05260683
NGOX.NGOXPOH	-0.01847678	0.02586924	0.01403577	0.17471985	-0.03417593
NGTT.NGTTPOH	-0.02865039	-0.03041049	-0.05260683	-0.03417593	0.08346118

WARNING: DEGREES OF FREEDOM NOT ADJUSTED FOR RESTRICTIONS

WEIGHTED MEAN SQUARE ERROR FOR SYSTEM = 1.402858 WITH 82 DFS

WEIGHTED R-SQUARE FOR SYSTEM = 0.9931
THIS IS THE R-SQUARE THAT CORRESPONDS TO THE APPROXIMATE F TEST ON ALL NON-INTERCEPT PARAMETERS IN THE SYSTEM.

Table 22. Independent Forecast of Annual Natural Gas End Use Requirements. Calendar Year 1982 (MMCF)

	Actual* 1981	Lower 95% Confidence Limit	Forecast** 1982	Upper 95% Confidence Limit	Forecast % Change
Residential	376	358	370	382	-1.6
Commercial	160	146	155	164	-3.1
Industrial	302	280	295	310	-2.3
Other	20	11	20	29	0
Total	858	820***	840	860***	-2.1

Source: Ohio Department of Energy.

* Based upon the first nine months of 1981.

** Forecasts are up dated for 1981 actuals. Industrial forecast is based on the presumption that average unemployment during 1982 will remain around 8.5% during first half of 1982, and improve during second half to around 7.0%.

*** The confidence limits for the total are not equal to the sum of the confidence limits of its components by definition of the statistical concepts involved.

APPENDIX A

FORECAST OF ELECTRICITY DEMAND BY UTILITY AND SECTOR

Table A-1. Allegheny Power System:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	2,674	2,732	2.2	2,669	-0.2
December	2,947	3,026	2.7	2,914	-1.1
January	3,205	3,262	1.8	3,122	-2.6
February	2,759	2,841	3.0	2,811	1.9
March	2,936	2,865	-2.4	2,859	-2.6
April	2,483	2,663	7.2	2,550	2.7
May	2,498	2,657	6.4	2,541	1.7
June	2,540	2,615	3.0	2,513	-1.1
July	2,683	2,673	-0.4	2,625	-2.2
August	2,626	2,791	6.3	2,687	2.3
September	2,483	2,620	5.5	2,532	2.0
October		2,799		2,691	

*Source of demand figures is ERA Form 119-M. October actual figure is not available.

Table A-2. American Electric Power:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	6,804	7,226	6.2	6,851	0.7
December	7,141	8,140	14.0	7,144	0.0
January	7,765	8,875	14.3	7,776	0.1
February	8,421	8,214	-2.5	8,421	0.0
March	7,323	7,890	7.7	7,541	3.0
April	7,548	7,063	-6.4	7,712	2.2
May	6,257	7,007	12.0	6,532	4.4
June	6,357	6,932	9.0	6,571	3.4
July	6,806	7,306	7.3	6,879	1.1
August	7,202	7,621	5.8	7,267	0.9
September	6,987	7,111	1.8	7,136	2.1
October		7,319		6,587	

*Source of demand figures is ERA Form 119-M. October actual figure is not available.

Table A-3. Cincinnati Gas and Electric:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	1,209	1,261	4.3	1,223	1.2
December	1,369	1,461	6.7	1,354	-1.1
January	1,463	1,497	2.3	1,443	-1.4
February	1,264	1,301	2.9	1,328	5.1
March	1,290	1,343	4.1	1,327	2.9
April	1,119	1,165	4.1	1,149	2.7
May	1,169	1,237	5.8	1,175	0.5
June	1,374	1,407	2.4	1,320	-3.9
July	1,501	1,594	6.2	1,540	2.6
August	1,414	1,619	14.5	1,508	6.6
September	1,202	1,321	9.9	1,260	4.8
October		1,212		1,218	

*Source of demand figures is ERA Form 119-M. October actual figure is not available.

Table A-4. Cleveland Electric Illuminating:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	1,487	1,554	4.5	1,486	-0.1
December	1,595	1,681	5.4	1,579	-1.0
January	1,678	1,729	3.0	1,675	-0.2
February	1,517	1,607	5.9	1,555	2.5
March	1,622	1,679	3.5	1,616	-0.4
April	1,494	1,553	2.6	1,458	-2.4
May	1,528	1,587	3.9	1,457	-4.6
June	1,616	1,653	2.3	1,496	-7.4
July	1,645	1,687	2.6	1,575	-4.3
August	1,609	1,720	6.9	1,598	-0.7
September	1,485	1,619	9.0	1,461	-1.6
October		1,621		1,503	

*Source of demand figures is ERA Form 119-M. October actual figure is not available.

Table A-5. Dayton Power and Light:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	871	911	4.6	884	1.5
December	974	1,031	5.9	970	-0.4
January	1,059	1,088	2.7	1,055	-0.4
February	923	1,004	8.8	960	4.0
March	955	970	1.6	962	0.7
April	805	861	7.0	821	2.0
May	803	857	6.7	795	-1.0
June	897	906	8.8	865	-3.6
July	972	1,000	1.0	977	0.5
August	934	987	2.9	959	2.7
September	833	977	5.7	848	1.8
October		923	17.3	870	

*Source of demand figures is ERA Form 119 M. October actual figure is not available.

Table A-6. Ohio Edison System:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	1,998	2,074	3.8	2,087	4.5
December	2,182	2,158	1.1	2,244	2.8
January	2,265	2,370	4.6	2,366	4.5
February	2,016	2,136	6.0	2,155	6.9
March	2,163	2,234	3.3	2,247	3.9
April	1,914	2,041	6.6	2,002	4.6
May	1,922	2,032	5.7	1,989	3.5
June	2,033	2,045	0.6	2,058	1.2
July	2,143	2,157	0.7	2,180	1.7
August	2,066	2,310	11.8	2,176	5.3
September	1,956	2,078	6.2	2,055	5.1
October		2,161		2,203	

*Source of demand figures is ERA Form 119-M. October actual figure is not available.

Table A-7. Ohio Valley Electric Corporation:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-81)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)
November	577	1,416	145.4
December	596	1,468	146.3
January	596	1,429	139.8
February	539	1,259	133.6
March	594	1,424	139.7
April	576	1,373	138.4
May	596	1,448	143.0
June	578	1,357	134.8
July	596	1,480	148.3
August	595	1,434	141.0
September	578	1,342	132.2
October		1,501	

*Source of demand figures is ERA Form 119-M. October actual figure is not available.

Table A-8. Toledo Edison Company:
Forecast of Electric Energy Demand
(1000 MWH)

	Actual Demand* (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	640	644	0.6	639	-0.2
December	700	683	-2.4	680	-2.9
January	741	702	-5.3	734	-0.9
February	652	667	2.3	656	0.6
March	668	665	-0.4	670	1.5
April	572	615	7.5	580	1.4
May	591	610	3.2	587	-0.7
June	613	618	0.8	605	-1.3
July	655	638	-2.6	649	-0.9
August	645	660	2.3	659	2.2
September	592	629	6.3	602	1.7
October		631		658	

*Source of demand figures is ERA Form 119-M. October actual figure is not available.

Table A-9. Forecast of Ohio Electricity Demand - Residential Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	1,767.5	2,075.7	2,383.8	2,193.3	-5.4
December	2,255.9	2,574.7	2,893.4	2,699.3	-4.6
January	2,826.2	3,155.2	3,484.2	3,333.8	-5.2
February	2,559.7	2,898.6	3,237.6	2,962.9	-2.2
March	2,231.4	2,580.0	2,928.6	2,603.3	-0.9
April	1,846.8	2,204.8	2,562.8	2,179.5	1.2
May	1,605.8	1,973.0	2,340.1	1,985.8	-0.6
June	1,666.7	2,042.8	2,418.9	2,065.1	-1.1
July	2,067.5	2,452.3	2,837.2	2,521.2	-2.7
August	2,021.7	2,415.1	2,808.5	2,370.1	1.9
September	1,844.3	2,246.0	2,647.7	2,197.2	2.2
October	1,469.4	1,932.0	2,404.7	1,960.3	-1.4

Notes: 1. The forecast is based on the monthly comparative summary statistics of the Ohio Electric Utilities Institute for eight major investor-owned electric utilities (excluding OVEC).

2. Forecast by ODOE.

Table A-10. Forecast of Ohio Electricity Demand - Commercial Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	1,495.6	1,632.1	1,768.7	1,579.3	3.3
December	1,612.2	1,764.0	1,915.7	1,721.2	2.5
January	1,739.2	1,904.8	2,070.4	1,902.9	0.1
February	1,695.2	1,873.5	2,051.8	1,793.0	4.5
March	1,554.1	1,744.3	1,934.5	1,700.4	2.6
April	1,452.4	1,653.9	1,855.3	1,594.1	3.8
May	1,391.0	1,603.1	1,815.1	1,565.2	2.4
June	1,547.2	1,769.3	1,991.4	1,758.5	0.6
July	1,717.8	1,949.6	2,181.4	1,989.6	-2.0
August	1,721.6	1,962.6	2,203.7	1,906.0	3.0
September	1,652.0	1,902.0	2,152.0	1,849.5	2.8
October	1,432.9	1,703.0	1,973.1	1,621.2	5.0

Notes: 1. The forecast is based on the monthly comparative summary statistics of the Ohio Electric Utilities Institute for eight major investor-owned electric utilities (excluding OVEC).

2. Forecast by ODOE.

Table A-11. Forecast of Ohio Electricity Demand - Industrial Sector
(1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	3,542.6	3,831.9	4,121.2	3,823.2	0.2
December	3,407.9	3,762.3	4,116.6	3,918.8	-4.0
January	3,402.9	3,812.1	4,221.3	3,861.1	-1.3
February	3,329.2	3,786.7	4,244.2	3,952.8	-4.2
March	3,422.9	3,924.0	4,425.2	4,048.0	-3.1
April	3,328.9	3,870.2	4,411.5	3,927.2	-1.5
May	3,318.2	3,896.9	4,475.6	3,930.4	-0.9
June	3,279.1	3,892.9	4,506.6	4,006.0	-2.8
July	3,108.7	3,755.7	4,402.7	3,898.7	-3.7
August	3,207.8	3,686.3	4,564.9	4,011.1	-3.1
September	3,171.1	3,879.9	4,588.6	3,843.9	0.9
October	3,203.7	3,994.9	4,686.1	3,875.3	1.8

Notes: 1. The forecast is based on the monthly comparative summary statistics of the Ohio Electric Utilities Institute for eight major investor-owned electric utilities (excluding OVEC).

2. Forecast by ODOE.

Table A-12. Forecast of Ohio Electricity Demand - All Sectors
(1000 MWH)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	7,135.8	7,771.2	8,406.7	8,066.3	-3.7
December	7,485.0	8,277.6	9,070.2	8,845.4	-6.4
January	8,040.1	8,963.5	9,886.8	9,605.6	-6.7
February	7,768.6	8,806.4	9,844.1	9,210.9	-4.4
March	7,407.5	8,548.3	9,689.0	8,852.2	-3.4
April	6,742.2	7,977.4	9,212.6	8,121.4	-1.8
May	6,405.2	7,728.1	9,051.0	7,872.1	-1.8
June	6,433.1	7,838.3	9,243.4	8,236.6	-4.8
July	6,660.9	8,143.7	9,626.6	8,810.8	-7.6
August	6,871.4	8,428.0	9,984.7	8,669.6	-2.8
September	6,678.3	8,305.5	9,932.6	8,298.9	-0.1
October	6,073.1	7,788.2	9,503.3	7,877.8	-1.1

Notes: 1. The forecast is based on the monthly comparative summary statistics of the Ohio Electric Utilities Institute for eight major investor-owned electric utilities (excluding OVEC).

2. Forecast by ODOE.

APPENDIX B

FORECAST OF NATURAL GAS DEMAND BY UTILITY

Table B-1. Cincinnati Gas and Electric:
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	9,648	8,667	-10.17	8,796.14	-8.83
December	12,846	12,889	0.33	12,916.9	0.55
January	15,164	12,496	-17.59	15,336.5	1.44
February	11,652	12,053	3.44	12,883.5	10.57
March	10,326	10,700	3.62	10,818.2	4.77
April	5,461	6,788	24.30	6,661.67	21.99
May	5,480	5,180	-5.47	4,680.99	-14.60
June	3,814	4,008	5.09	3,624.35	-4.97
July	3,504	3,958	12.96	3,465.21	-1.11
August	3,589	3,951	10.09	3,899.34	8.65
September	3,692	4,091	10.81	3,730.71	1.05
October	5,881	5,644	-4.03	6,031.87	2.57

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

Table B-2. Columbus Gas of Ohio:
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	34,423	31,925	-7.26	32,596.9	-5.30
December	45,393	44,763	-1.39	44,759.1	-1.40
January	53,771	52,216	-2.89	53,677.3	-0.17
February	41,871	42,468	1.43	46,638.1	11.39
March	37,387	37,093	-0.79	38,813.2	3.81
April	23,033	27,095	17.64	27,371.2	18.83
May	20,413	19,603	-3.79	18,796.6	-7.92
June	14,475	14,614	0.96	14,039.7	-3.01
July	13,489	13,563	.55	13,288.1	-1.93
August	13,532	15,215	12.44	14,140.3	4.5
September	14,758	15,712	6.46	14,733.5	-.17
October	22,794	23,821	4.51	23,171.3	1.66

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

Table B-3. Dayton Power and Light:
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	6,058	5,386	-11.09	5,661.70	-6.54
December	7,615	7,839	2.94	8,313.50	9.17
January	10,815	8,898	-17.73	10,826.3	0.10
February	9,333	9,200	-1.43	10,303.8	10.40
March	7,064	6,956	-1.53	7,634.38	8.07
April	4,138	5,560	34.36	5,324.10	28.66
May	3,540	3,312	-6.44	3,331.85	-5.88
June	2,130	2,164	1.60	2,200.81	3.32
July	1,817	1,802	-0.83	1,908.38	5.03
August	1,895	1,881	-0.74	1,972.67	4.10
September	2,053	1,995	-2.83	2,205.29	7.42
October	*	3,463		3,367.80	

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

*Actuals not available at this time.

Table B-4. East Ohio Gas:
Forecast of Natural Gas Requirements
(MMCF)

	Actual Demand (1980-1981)	Utility Forecast (1981-1982)	Forecast % Change (Utility Forecast vs. Actual)	ODOE Forecast (1981-1982)	Forecast % Change (ODOE Forecast vs.Actual)
November	34,518	32,576	-5.63	35,496.7	2.84
December	46,775	43,886	-6.18	48,258.4	3.17
January	53,832	49,009	-8.96	55,789.4	3.64
February	40,327	44,620	10.65	47,068.5	16.72
March	38,896	59,042	0.38	39,314.3	1.08
April	32,322	34,763	7.55	32,829.4	1.57
May	27,996	29,485	5.32	25,160.4	-10.13
June	22,184	23,905	8.15	20,752.5	-6.11
July	20,875	21,573	3.34	18,910.8	-9.41
August	21,084	21,435	1.66	20,117.1	-4.59
September	22,837	23,250	1.82	21,554.6	-5.60
October	*	29,705		29,259.1	

Source: SG-2. Forms of the reporting utility and the Ohio Department of Energy.

*Actuals not available at this time.

Table B-5. Independent Forecast of Ohio Natural Gas
End User Requirements-Residential Sector
(MMCF)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	23,926	31,902	39,877	33,960	-6.1%
December	44,039	52,439	60,839	52,156	0.5%
January	59,889	68,289	76,689	72,449	-5.7%
February	57,071	65,471	73,871	61,561	6.4%
March	43,181	51,581	59,981	49,886	3.4%
April	26,800	35,200	43,600	30,965	13.7%
May	14,701	19,601	24,501	21,548	-9.0%
June	7,641	10,188	12,735	11,236	-9.3%
July	5,941	7,921	9,901	8,598	-7.9%
August	5,635	7,513	9,391	7,695.3	-2.4%
September	6,262	8,350	10,438	9,087	-8.1%
October	12,907	17,210	21,513	*	*

*Figures not available.

Table B-6. Independent Forecast of Ohio Natural Gas
End User Requirements-Commercial Sector
(MMCF)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	10,180	13,395	16,610	14,548	-7.93%
December	18,304	21,604	24,904	22,197	-2.67%
January	24,408	27,408	30,708	30,341	-9.67%
February	23,361	26,661	29,961	26,455	.78%
March	18,039	21,339	24,639	21,190	.70%
April	12,179	15,479	18,779	12,834	20.61%
May	6,851	9,014	11,177	8,532	5.65%
June	4,030	5,303	6,576	4,935	7.46%
July	3,253	4,280	5,307	4,027	6.28%
August	3,162	4,161	5,160	3,820	8.93%
September	3,308	4,352	5,396	4,281	1.66%
October	5,581	7,344	9,107	*	*

*Figures not available.

Table B-7. Independent Forecast of Ohio Natural Gas
End User Requirements-Industrial Sector
(MMCF)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	21,125	25,625	30,125	26,501	-3.3%
December	23,368	27,868	32,368	29,781	-6.4%
January	25,493	29,993	34,493	32,697	-8.3%
February	24,636	29,136	33,636	29,857	-2.4%
March	24,128	28,628	33,128	27,930	+2.5%
April	22,271	26,771	31,271	24,867	+7.6%
May	20,424	24,924	29,424	24,330	+2.4%
June	19,029	23,529	28,029	22,415	+5.0%
July	17,177	21,677	26,177	19,841	+9.2%
August	18,940	23,440	27,940	20,177.8	+16.5%
September	19,889	24,389	28,889	20,444	+19.3%
October	22,441	26,941	31,441	*	*

*Figures not available.

Table B-8. Independent Forecast of Ohio Natural Gas Requirements-Total-All Sectors (MMCF)

Month	Lower 95% Confidence Limit	Forecast (1981-1982)	Upper 95% Confidence Limit	Actual (1980-1981)	Forecast Percentage Change
November	70,904	85,904	100,904	88,547	-2.98%
December	101,954	116,954	131,954	117,473	-0.44%
January	122,935	137,935	152,935	139,399	-1.05%
February	102,939	117,939	132,939	108,030	9.17%
March	81,756	96,756	111,756	98,145	-1.42%
April	56,858	71,073	85,288	67,946	4.60%
May	40,731	50,914	61,097	59,991	-15.13%
June	32,011	40,014	48,017	44,672	-10.43%
July	29,935	37,419	44,903	41,827	-10.54%
August	31,929	39,911	47,893	41,762	-4.43%
September	33,657	42,071	50,485	45,443	-7.42%
October	50,726	63,408	76,090	*	*

*Figures not available.

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Table B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities. (MMCF)

COMPANY: CINN. GAS & ELEC.

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	3989	6062	6162	9393	12990	13289	11566	10663	7653	5368	4215	4050	55677	57699	93478
DEMAND	3989	6062	6162	9393	12990	13289	11566	10663	7653	5368	4215	4050	55677	57699	93478
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: COLUMBIA GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	15498	16082	24267	33615	46320	57388	44776	39421	28159	20608	15577	0	120191	221518	341709
DEMAND	15498	16082	24267	33615	46320	57388	44776	39421	28159	20608	15577	0	120191	221518	341709
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: DAYTON POWER & LIGHT

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	1921	2045	3466	5586	7839	8898	9200	6956	5560	3312	2166	1802	20270	38279	58549
DEMAND	1921	2045	3466	5586	7839	8898	9200	6956	5560	3312	2166	1802	20270	38279	58549
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: EAST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	22926	24760	30217	32665	43524	48575	43969	38550	34629	29809	24300	22151	188772	207263	396035
DEMAND	22926	24760	30217	32665	43524	48575	43969	38550	34629	29809	24300	22151	188772	207263	396035
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table B-9. Projected Supply and Demand for Eight Major Ohio Natural Gas Utilities (Cont'd) (MMCF)

COMPANY: NATIONAL GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	1105	1165	1100	1083	1274	1435	1477	1480	1370	1220	1150	1135	6585	6749	13434
DEMAND	1078	1020	1015	1023	1098	1198	1148	1126	982	1053	1026	1007	7189	5591	12780
DEFICIENCY	-107	152	85	60	176	-237	-329	-456	-388	167	124	188	1196	1156	2352
% DEFICIENCY	9.9%	13.3%	8.4%	-5.9%	16.0%	-19.8%	-28.7%	31.4%	39.5%	-15.9%	-12.1%	18.7%	16.6%	20.7%	18.4%

COMPANY: OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	668	954	1225	1969	2824	2804	1796	1949	1286	1053	735	683	6936	9250	16186
DEMAND	295	520	566	769	1051	1163	1004	842	552	556	432	403	2951	5287	7740
DEFICIENCY	373	564	679	1200	993	-841	-792	-1107	-732	-688	-583	-286	5565	5951	8446
% DEFICIENCY	126.4%	152.4%	126.8%	160.2%	76.3%	72.3%	78.7%	131.5%	132.6%	193.8%	28.1%	51.1%	128.1%	183.8%	183.5%

COMPANY: RIVER GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	155	182	309	458	617	720	659	518	329	261	172	143	1551	2972	4501
DEMAND	155	182	309	458	617	720	659	518	329	261	172	143	1551	2972	4501
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: WEST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	8/81	9/81	10/81	11/81	12/81	1/82	2/82	3/82	4/82	5/82	6/82	7/82	SUMMER	WINTER	YEAR
SUPPLY	547	573	1037	1596	1788	2561	2217	1597	1221	789	570	462	5179	7559	14518
DEMAND	547	573	1037	1596	1788	2561	2217	1597	1221	789	570	462	5179	7559	14518
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

SOURCE: S-G Forms of reporting Utilities and ODOE

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